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Difussion of Radically New Products

**Strategies for Telecommunication Equipment Vendors
to Manage the Diffusion of Mobile Internet in Developing
Country Markets**

The case of Ericsson Turkey

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ABSTRACT

In today's dynamic business life, mobility could be addressed as the strongest factor shaping the preferences of consumers. Mobility is indisputably the major driving force behind the success of wireless communication. On the other hand, the Internet has become our primary source and means of information. The concept of being accessible to the Internet while one is mobile has ended up in the creation of Mobile Internet services.

The future of this new technology is still controversial in the developed markets. We believe that it was somewhat of an interesting departure point for us to study the situation of mobile Internet in emerging markets beside the developed markets. We have taken Turkey into spotlight, since the market has been relatively different from the other emerging markets where several issues have already been resolved such as the presence of an eligible technical structure for development of mobile Internet. Additionally, Turkey is the fourth largest market for Ericsson and this warns us about the existence of an important potential for mobile data usage. Internet on the other side has presented a weak performance for several reasons. Mobile Internet could be expected to bring new opportunities for the market.

In the light of these facts, we have tried to determine necessary actions to be taken by various players in Turkish telecommunication industry, giving an additional emphasize to our case company, Ericsson Turkey. We believe that the academic contribution of the research will also be noteworthy, since it is one of the first studies about this brand new technology.

Key words: Mobile Internet, mobile communication, Internet, Ericsson, Turkey, emerging markets, network externalities, diffusion theory, WAP, GPRS, EDGE, 3G, emerging markets, digital economy, convergence

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1. INTRODUCTION

This study deals with the mobile Internet Industry with special focus on Turkey. In this chapter, we aim to present the background of the research. This introductory chapter is designed as follows. First, we give brief information about the industry, the case company and the country market. Then we define the research problem and the sub-problems. Finally, we state the purpose and the delimitations of the study.

1.1 Background

The main reason for us choosing the development pattern of **Mobile Internet Industry** as our research subject was that it is a relatively new business development platform. It is the result of the fusion of the two ‘hottest’ industries, mobile communications industry and the Internet. This newly commercialised technology represents arguably the most promising and challenging platform following the unprecedented boom of the wireline Internet during the 90s. This new medium presents enormous opportunities for the developed countries as well as for the developing countries. ‘Lower-than-the wireline’ costs of deploying this technology and to cover large areas in a short time gives new prospects and chances for many developing nations, which are striving to integrate and adapt themselves to the so-called ‘new economy’ and the Internet epoch.

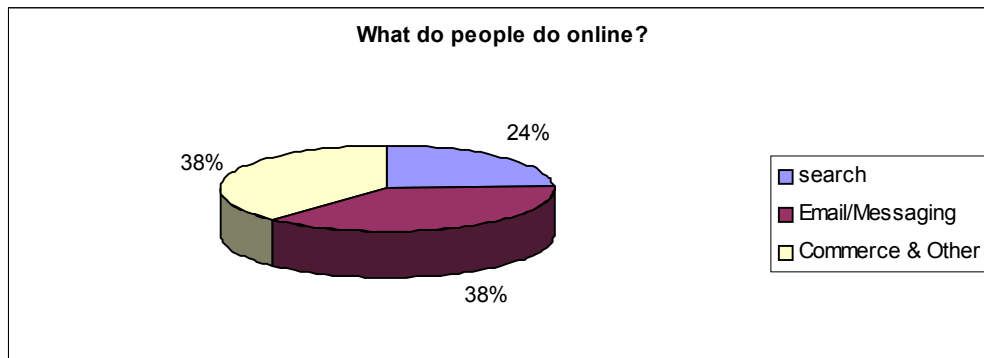
Mobile telecommunication and the convergence of the Internet to this booming medium have emerged as two of the most important phenomena within the globalisation process. Particularly in Europe, which leads the Mobile technology developments ahead of U.S.A that is the leader of the Internet world, the mobile Internet has surfaced as a vital issue. It is thought to be vital to catch up with U.S. in the Internet technologies and to increase the competencies of the European economies in the digital economy era. Thus, mobile Internet is not just a technological or an economic issue but is also a strategic issue to be addressed by the governments around the world.

1.1.1 The Internet

The emergence of the datacom technologies, mainly the Internet has changed our lives in many ways. The Internet is more than just a technology trend. It is a global phenomenon that could ultimately cause as much change in the world economy as the printing press, the telephone, electricity or the automobile. Unlike usual technology trends, which render prevailing technologies obsolete and open the door for vendors of new technologies, the Internet, which has been growing so quickly¹, is changing the way people and companies communicate research, buy, sell, distribute goods and services, and spend leisure time. As a result, it is not only creating the opportunity for new businesses to get big fast, but is also introducing change and competition into a wide range of mature industries, including media, retailing, technology, communications, financial services, transportation, healthcare, and energy.

Today millions of people all around the world go online to (1) communicate, (2) look for, read, watch, listen to, interact with news, information, people or products and (3) in one way or another, transact.

Figure 1.1 What do people do online? (2000)



Note: The percentages of number of hours spent online per activity. Content, Commerce and Other includes finance, games, news and sports Source: Interviews / Turkey, October 2000

The Internet has changed the way people do business. The business-to-consumer (**B2C**) and the business-to-business (**B2B**) transactions taking place

¹ The Internet has been an affordable and commercially available only since 1994. Though by 1997, some 19 million Americans were using the Internet. That number tripled in one year, and then passed 100 million in 1999. Source: The UCLA Internet Report (2000)

on the Internet have been growing at a rapid pace. eMarketer, a research company specialized on the Internet, in its eGlobal report foresees that total worldwide e-commerce will total \$550 billion by year-end 2001. By 2004, it is expected to reach \$3.2 trillion². The advantages to banks, betting firms, travel agencies and other companies offering services and content, are apparent. Besides being able to offer customers new and attractive services, companies can gather information about individual customer behaviour to use in marketing and developing new services and products.

According to the eGlobal Report, the number of active Internet users worldwide will climb to 361.9 million by the year 2003, a 178 percent rise on the 130.6 million people who were actively using the Net at year-end 1999. The pace of expansion is incredible. Yet, one trend surpasses all these numbers...

1.1.2 The Mobile Internet

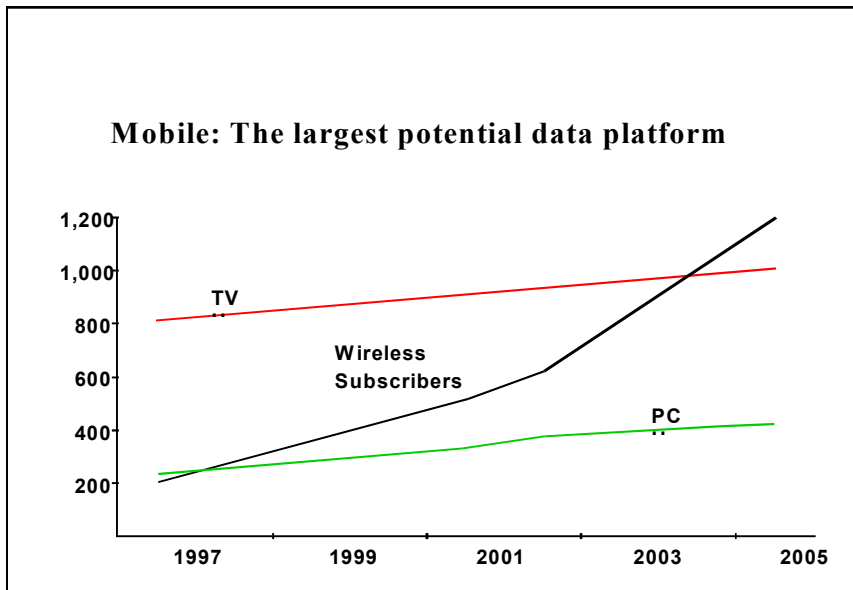
The rapid expansion of the Internet has been extraordinary. So was the expansion of the mobile telecommunication systems. Now the Internet and the mobility come together to offer us the 'mobile Internet'. The Internet and Wireless will merge into one service that business users and consumers will use daily. Personalized Services will be delivered to individuals with knowledge of the users location, desires, needs, and schedule. Homes will be secured with wireless alarm systems, cars will alert the mechanic and the driver when there is a problem, and most applications will be built "geo-location ready". These context sensitive services will create a new dimension that enhances today's static, fixed, wired Internet.

Data traffic is increasing enormously, and is expected to grow 40-50 per cent in year 2000. This growth in demand for Internet access and services has paralleled the explosion in demand for mobile communications. Soon mobile systems users all over the world will be able to access to the Internet while they are away from their offices and homes. Therefore, utilization of Internet via

² Source: eMarketer web site - <http://emarketer.com/>

mobile systems appears as a suitable platform for the development of commercial services, which are expected to bring more to our business and daily lives than we have achieved from the Internet and cell phones separately. With Mobile Internet, we gain access to the Web wherever, and whenever it suits us. More, we will be able to have access to a new set of services tailored to our location, individual preferences and circumstances.

Figure 1.2 Forecasts of wireless subscribers compared to TV and PC users
1997- 2005



Source: Goldman Sachs presentation: Mobile Data – Facts and fictions by Sean Faughnan,
<http://www.gs.com/>

The Internet has become the fastest growing electronic technology in world history. In the United States, for example, after electricity became publicly available, 46 years passed before 30 percent of American homes were wired; 38 years passed before the telephone reached 30 percent of U.S. households, and 17 years for television. The Internet required only seven years to reach 30 percent of American households. However, there is more: the number of wireless subscribers has reached the same penetration rate in less time.

The birth of the Mobile Internet and the deployment of the infrastructure for this technology is arguably the most exciting and controversial issue at this time. This and the descriptions we made above explain why we have chosen

this topic. However, they do not reveal why we have particularly chosen the Turkish Market.

1.1.3 Mobile Internet has critical importance for developing countries

Choosing emerging markets, and particularly **Turkey**, as our research area is based on the fact that mobile Internet is a huge opportunity for these countries in their effort to cope with the developed economies through increasing Internet penetration rate by deploying the relatively cheap and easy-to-build mobile communication infrastructures. In the case of Turkey, we observe that the country has a relatively up to date telecom infrastructure, which is comparable to the networks in Western Europe. Besides, the mobile subscriber base is expanding rapidly, although the penetration rate is still below EU averages. However, we came across some problematic factors that could be a threat to the fast diffusion and exploitation of this technology. These factors, in return, could prevent the market from reaching the appropriate volume that would enable the businesses along the value chain to operate profitably. Considering these, we found the topic ‘Mobile Internet Development Strategies for Turkey’ as a suitable practical and theoretical base to create our research problem. We decided to analyse the market with a special regard to our case company and to come up with several applicable suggestions that could help to relate to the challenges of developing this new service throughout the country.

In the light of all this, in late summer we got in contact with Ericsson’s subsidiary in Turkey, Ericsson Telekomunikasyon A.Ş. (ETAS) with the aim of concluding them as our case company. They were also interested in searching for ways to explore the critical factors for increasing the diffusion rate for this new platform in the Turkish market. Thus, we agreed on cooperating on this research project. The business development team in Ericsson has been most helpful, understanding and supportive for the creation of this study since then.

1.2 The Case Company – Ericsson Telekomunikasyon A.Ş.

Ericsson is one of the leading suppliers of telecommunication equipment. The company operates in seven continents, enabling people to communicate with

each other. Ericsson is the world leader in mobile systems, with nearly **40 percent of the market**, based on total subscribers connected to mobile networks. Today Ericsson provides total solutions from infrastructure to application, cellular phones and all the telecommunication equipment with its over **100,000 employees** throughout **140 countries**.

The company is also the leading communications supplier, combining innovation in mobility and Internet in creating the new era of **Mobile Internet (MI)**.

1.2.1 Ericsson in Turkey

Ericsson has been active in Turkey for **over a century**. In the 1890s, Ericsson connected Dolmabahçe Palace, the primary residence of the Ottoman Sultans, to a telephone line. In 1925, two years after the foundation of the Turkish Republic, Ericsson installed a telephone service in Izmir and the Aegean hinterland. This company later became Ericsson Turk, the leading supplier to PTT, the national telecommunication operator, in the 1950s and the 1960s.

In 1986, a new stage of activity began with the establishment of Ericsson Telekomunikasyon A.Ş. (ETAS), which introduced cellular mobile telephone system (GSM) to Turkey in 1993 as a founding shareholder and supplier of Turkcell.

ETAS is a leader in telecommunications in Turkey, supplying products for both fixed-wire and mobile communications to the public and private networks. The company serves the mobile phone market through the GSM system installed for Turkcell and retains a dominant share in the competitive market for mobile phone handsets.

Table 1.1 Top ten markets for Ericsson

TOP TEN MARKETS		
1.	U.S.A.	12%
2.	CHINA	9%
3.	U.K.	7%
4.	TURKEY	6%
5.	ITALY	6%
6.	SPAIN	6%
7.	BRAZIL	5%
8.	MEXICO	5%
9.	JAPAN	5%
10.	SWEDEN	4%

Source: Ericsson, official website³, Figures are In terms of sales volume as of end of Q2, 2000

The Turkish market gained further significance for Ericsson in 2000. ETAS has captured 6 percent of net sales and ranked fourth among Ericsson's 10 largest markets for the first half of the year. Based in **Istanbul**, with representation and operation offices in **Ankara** and site offices in ten other cities, ETAS currently has a 550-strong workforce.

1.2.2 Strategies of Ericsson Turkey

In Turkey, Ericsson follows four main strategies in accordance with its **global corporate strategy bundle**. These are **(1)** Focusing on profitable growth, **(2)** Providing 'Total Solutions' to tomorrow's needs, **(3)** Creating added value for customers and strengthening customer relations, **(4)** Strengthening the market's perception of Ericsson through **branding** and **marketing**.

³ http://www.ericsson.com/infocenter/publications/contact/q2_2000_market_areas.html

Due to increasing competition in its markets, keeping close relations with customers such as **Turkcell**⁴ and **Turk Telekom**⁵ has become extremely important. The main customer segments for Ericsson in Turkey are

- Network operators and service providers
- Consumer Products

Enterprises (Corporate Clients) are at the moment a relatively less significant segment in the portfolio and are yet to be developed.

Ericsson is the market leader in mobile telecommunications market and in the fastest growing segment within this area, the Mobile Internet. Therefore, the company's main goal is to sustain this lead through exploiting its **first mover advantage** in the sector.

In this frame, we have chosen to study Ericsson's strategic options for MI Business Development in the Turkish market.

1.2.3. Mobile Internet and Ericsson

The MI offers much more than mobile access to the Internet - it opens up a completely new class of situation-based services that provide anytime, anywhere access to personalized communications, information and entertainment.

Ericsson's contributions to the WAP technology go back to the mid-1990s, where there had been cooperation with **AU-System**⁶ to establish a mobile terminal, called **ITTP** (Intelligent Terminal Transfer Protocol). This attempt was immediately followed by **Nokia** and **Unwired Planet** (today, it is Phone.com). Right after that, the mentioned actors decided to discuss the possibility of an open standard for wireless applications. With the initiatives of

⁴ The leading mobile service provider in the country

⁵ The telecom arm of the former national communication agency PTT

⁶ Another Swedish supplier of consulting services and solutions for the development of advanced wireless and Internet technologies, applications and associated services.

Ericsson, Nokia, Motorola, and Unwired Planet, the basics of the WAP applications have been established after a meeting in 16 June 1997.⁷

Ericsson predicts that by **2004**, there will be as many as **600 million users of MI services**. Keeping this in mind, the company presents an additional effort in its operations within this area. Not different from its market position in GSM market, the company is to achieve the market leadership in the development of new technologies, necessary for the MI (GPRS, 3G, WAP, Bluetooth...).

Ericsson endeavours to provide total MI solutions with products and services ranging from infrastructure for operators to devices for the end users (such as WAP products like R320). Throughout the coming years, Ericsson will try to maintain its leading position in the key operation areas and services that are mentioned below⁸:

- Mobile Office Solutions
- Mobile Positioning System
- M-commerce Solutions
- Interactive Communication Services
- IP Based Messaging Services
- Mobile Portal Solutions

1.3 Research Problem

1.3.1. Research background

Telecommunication is one of the leading industries in this first century of the new millennium. The developments in this industry began to shape the trends in the other industries, which increases the importance of this industry to a higher extent. **Ericsson**, which plays an important role in these developments, now faces an immense opportunity for **business development**.

⁷ Svenska Dagbladet, 13 September 2000

⁸ Ericsson Turkey Official Website, <http://www.ericsson.com.tr/>

Table 1.2. Size of the mobile communications market in Turkey (Q2 2000)

INDUSTRY DATA	June 1999	June 2000	Change
Estimated Population of Turkey (in millions)	64.33	65.34	2%
Turkish Mobile Telephone Customers (in millions)	5.50	10.58	92%
Turkish Market Mobile Telephone Penetration	9%	16%	

Source: Turkcell Official Website, <http://www.turkcell.com.tr>

The remarkable growth in the penetration rate of mobile phone subscribers in Turkey gives Ericsson a new prospect to sustain and further develop its leading position in the national market. Turkish market is rather sizeable, and the relatively low penetration rate offers huge business expansion opportunities. On the other hand, all the major vendors of equipment have operations in the country in varied degrees and competition is rather strong.

As mentioned above, the huge customer potential is one of the determinants that make Turkey one of the promising markets. On the other hand, the situation of the supplier side of the market is not less appealing than the demand side. It is believed that Türkiye İş Bankası – Telecom Italia Group, which won the license for the operating of GSM 1800, will give competition a new pace that had formerly been driven by two local operators; Turkcell and Telsim. A fourth GSM operator to be launched during year 2000 is also under question, which will surely have significant contributions for the market. The national monopoly for the fixed-line, Turk Telecom, is planned to be privatised within 2001. The state-owned company also holds a license to operate a mobile network, although no investment to establish the infrastructure is expected before the privatisation takes place.

At present, Ericsson is the sole vendor for the major carrier, Turkcell, and has been one of the major suppliers to Turk Telecom. As per sales, Ericsson is the leading supplier for both the network operators/service providers segment and the consumer products segment of the mobile industry.

1.3.2 Problem definition

In the light of what has been discussed above, one can conclude that **(1)** the Turkish telecom market is likely to keep on being one of the major markets for equipment vendors and the most lucrative segment will be the rapidly growing **MI**, **(2)** Ericsson currently has a **leading position** in the most promising segments of this market and **(3)** the **competition** in the market is **ever-increasing** and it is getting harder for any company to sustain its position and achieve further growth. As a consequence of these three conclusions, we have decided to investigate the key success factors in order to cope with the challenges of the Turkish MI market for equipment vendors.

In this regard, we can portray the problem as follows:

MAIN PROBLEM

How can a telecommunications equipment vendor successfully implement business development strategies in the rapidly growing Turkish mobile Internet market and achieve profitable growth?

In order to find an answer for this problem, we will subdivide it into several specific problems in order to be able to get into the basis of the problem.

RESEARCH PROBLEM 1

What is the composition of the Mobile Internet Industry in Turkey?

In the first research problem, the main purpose is investigating the effects of the macroeconomic factors on the industry environment without pursuing a detailed analysis on the macroeconomic aspects. Depicting the composition of the MI industry in Turkey will be the departure point for our study in order to establish a base to clarify the specific trends within the industry.

Scrutinizing this interaction between the macro and microenvironment of Ericsson, we will be able to determine the effects of the macroeconomic institutes on the microeconomic level. Therefore, it will be much easier for Ericsson to understand the competition and notify the major driving forces behind the new trends. This approach will also make our study more

practically based, which is crucial for the future applicability in daily business life.

RESEARCH PROBLEM 2

What are the major differences in the diffusion process of the mobile Internet between the developed and the developing economies?

After examining the general map of the major actors surrounding Ericsson within the industry, we will try to reveal the interaction between these actors, keeping Ericsson in focus within this environment. By doing so, we will be able to compare the concurrent operations of Ericsson with the other units' operations that are mentioned both in the macro and in microeconomic level. This is important in creating the possibility to determine the pros and cons, which will be the major tool to evaluate whether the company is on the right track to cope with the requirements of the ever-changing competition.

RESEARCH PROBLEM 3

How does Ericsson relate to the challenges of this context?

The reason behind our approach to clarify Ericsson's position in the Turkish MI industry is that we should find out the vital aspects in order to create a competitive advantage. Invention and innovation are the most important driving forces to create competitiveness in the technology-based industries. However, Ericsson Turkey acts as a service company that provides solutions for the corporate customers and as an intermediary that sells the consumer products to the end consumers. This fact led us to find it important for Ericsson to establish successful relationships with its business environment. Therefore, other corporate capabilities will replace invention, innovation and other success factors relevant for manufacturing. Diffusion comes out as a crucial concern considering the role of the company. Therefore, it is all about creating value for the customers and the other units in the supply chain. Hence, Ericsson must understand its suppliers, competitors, and customers and determine how to form business relationships with them. Innovation is certainly a key success factor in MI industry. However, in our case, the main problem is to achieve

acceptance for these innovations from both the demand and the supply side. Innovation cannot be turned into a competitive edge if it is not valued or does not gain acceptance by the market.

1.4. Purpose

MI is the result of the convergence of the Internet and the mobile telecommunication. Both sectors have had an astoundingly rapid but at the same time, a rather problematic diffusion processes. Their mix, the MI is likely to diffuse even more rapidly. However, the problems could be bigger as well both for the companies supplying the infrastructure and for the service providers. These problems are apparent even in **Sweden**, which enjoys one of the highest mobile penetration rates in the world⁹. One can assume that the integration of this technology could be even more painful in an emerging economy, for example Turkey. **Therefore, with this study we decided to explore the present and future state of the Turkish MI market and consequently to construct a framework for business developers on the equipment vendor side of the industry.**

1.5. Delimitations

The study is to deal with the MI industry alone and not with the mobile industry as a whole.

A thorough macro-environmental analysis will not be conducted as the research aims to study the emerging industry and not the emerging market itself.

Our analysis and the conclusions we come to, does not address a specific product group or a customer segment. With this study, we aim to construct a picture of the industry environment and then to construct a framework that would help the case company to relate to the challenges of developing the

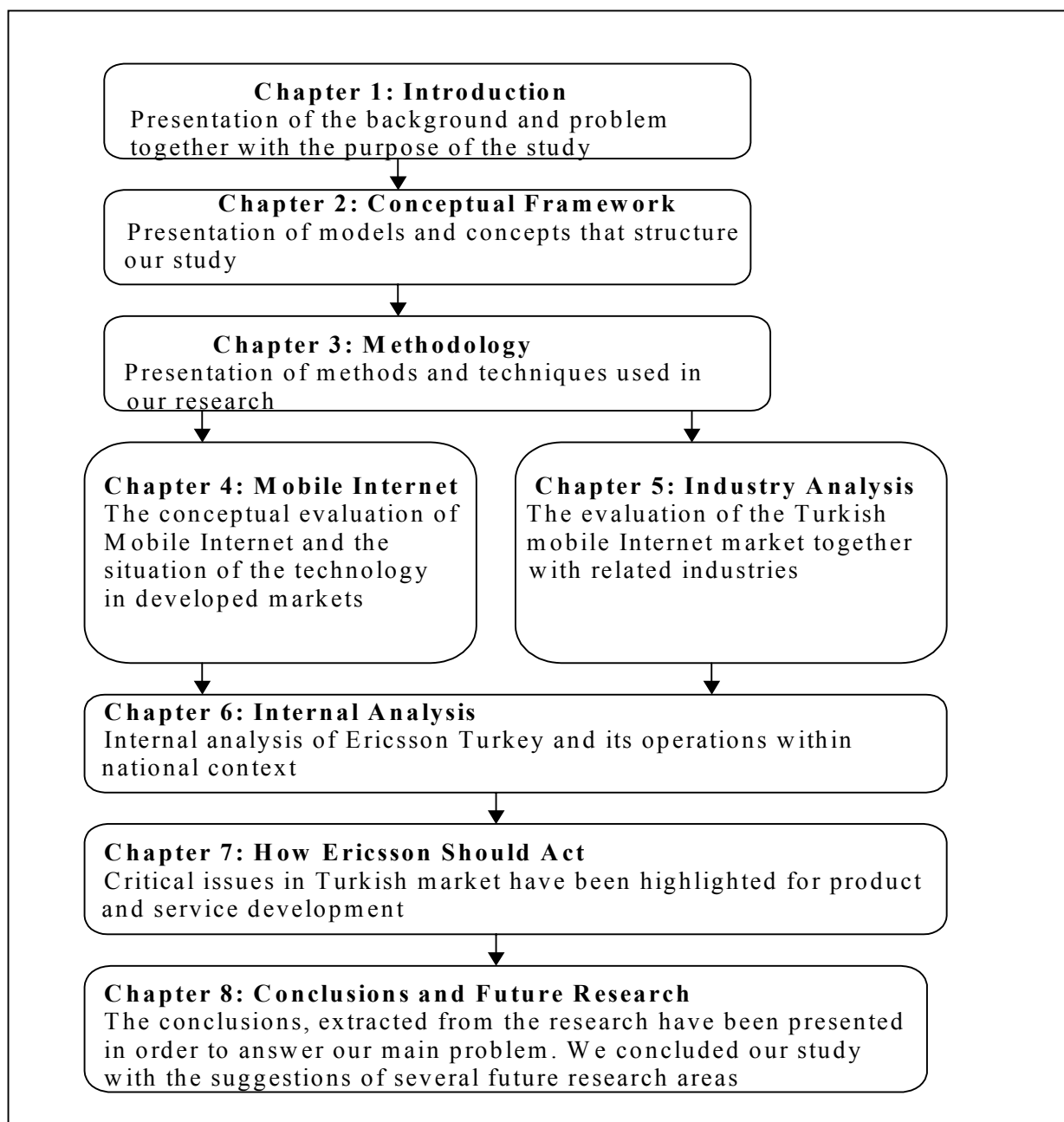
⁹ DAGENS INDUSTRI reports the difficulties Swedish WAP service providers face in 2000-09-18 issue - Ingen marknad för WAP.

market and thereby achieving a profitable growth through increased sales. Thus, the focus of the study is on how to develop the market and stimulate the demand for this new platform and the services that come with it.

1.6 Outline of the Thesis

The thesis is composed of eight chapters as the steps to solve our sub problems and eventually our main problem and fulfil the purpose of the study. The outline of the chapters can be depicted as follows.

Figure 1.3 The Structure of the Thesis



Source: Own

2. CONCEPTUAL FRAMEWORK

This chapter is organized as follows. First, we present the overall outline of the theoretical backbone of the thesis. Then we explain each component separately. We attempt to give a description of each model and give details about the modifications we have made.

2.1 The Outline

In this study, we attempt to present a detailed description and an analysis of the industry. Our research problem mainly concerns the development of an emerging industry in an emerging market. That is the diffusion process of the Mobile Internet in Turkey. Our starting point was that there would be some differences in the adoption of this ‘newly-commercialised’ product in developed and developing economies. Coping with these differences would only be possible once they are clearly defined. Thus, we have constructed the following model (1) to analyse the current situation of the industry, (2) to determine the critical issues to address and finally (3) to come up with specific recommendations. Doing this we have integrated existing models and modified them in a way that they would serve our purposes.

Both mobile communications and the Internet are technologies (or products) that have long been commercialised. The convergence of these two, the mobile Internet has also been technologically feasible for a rather long time. However, the introduction of the commercial mobile Internet for the masses is a recent phenomenon. There is something ‘radically different’ about it.

2.1.2 Radically new?

We suggest that the mobile Internet illustrates a radical change in the way people communicate. The framework we use for classifying change comes from Golembiewski, Billingsley, and Yeager (1976). Cooper (2000) quotes in his article, Strategic Marketing Planning for Radically New Products, from

Golembiewski et al., which expands on the traditional understanding of change. Instead of assuming that change is a single unified concept, the authors distinguish three distinct types of change.

Alpha Change: A variation that is measured on a fixed scale. This kind of change amounts to repositioning a brand in an existing framework such as a perceptual map. The dimensions do not change, nor is there any implied change in what people value. Rather the attempt is to realign the brand image to better capture existing values. An advertising campaign to make Oldsmobile have a sportier image would be an example of an alpha change.

Beta Change: A variation that is measured on a changing scale. A beta change occurs when values change—with a corresponding change in ideal points in a product map. Say the children finally leave home and the parents can indulge their desire for sportier cars. Without any change in brand positioning, (i.e., alpha change), sportier cars are more preferred because the consumer's values have changed, a beta change.

Gamma Change: A variation that can only be measured by adding a new perceived dimension to product positioning that redefines the products and the ideal points in a perceptual map of a market. For example, a car manufacturer introduces an electric vehicle. Consumers now have to think about recharging stations, rethink carpooling notions, and reset expectations about acceleration, trip distance, and reliability. **These factors change the dimensions of the problem – the defining characteristic of gamma change.**

According to Cooper¹⁰, products are radically new from a consumer perspective when gamma change occurs. A single dimension reflects the least change that is considered radical from a consumer perspective. The technological revolution that reshapes where and how we work or how we live our family lives engages many new dimensions of experience and expression. Many of the topics that are relevant for radically new products are also relevant for more traditional new product planning. However, there are significantly

¹⁰ Cooper (2000)

different issues one should address when dealing with the former. As these products are generally examples of ‘discontinuous innovations’ or ‘disruptive innovations’ that change the dimensionality of the consumer decision and revolutionize product markets. Be it one or multi-dimensional, **gamma change should cause planners to rethink what are often considered settled questions about the environment and infrastructure.**

The mobile Internet also represents a gamma change as it adds totally different functions to both the mobile communication and the way the Internet is used. It introduces real ‘real-time’ information, uninterrupted access and mobility to the Internet and increased datacom abilities and content to the mobile communication. By doing that it changes the dimensions of both. Mobile Internet is neither one of its components but a radically new product. Thus, it deserves specific attention and consideration by the professionals operating in this industry.

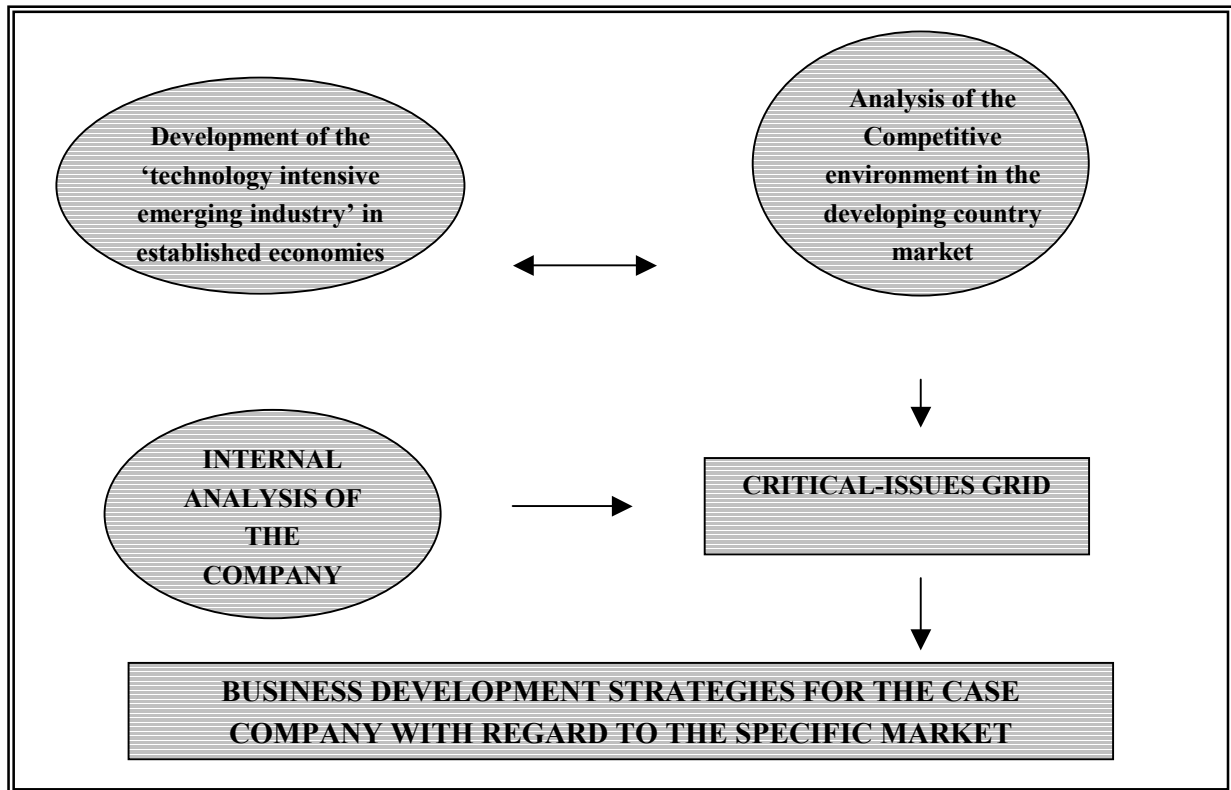
So far, we tried to explain the two basic assumptions that constitute the logic behind the outline of the study. These are

The development process of a technology-intensive emerging industry (or the introduction of a radically new product) would be significantly different in developed and developing country markets

The focus of the study, the mobile Internet, is a radically new product and the marketing planning should be significantly different from a traditionally new product.

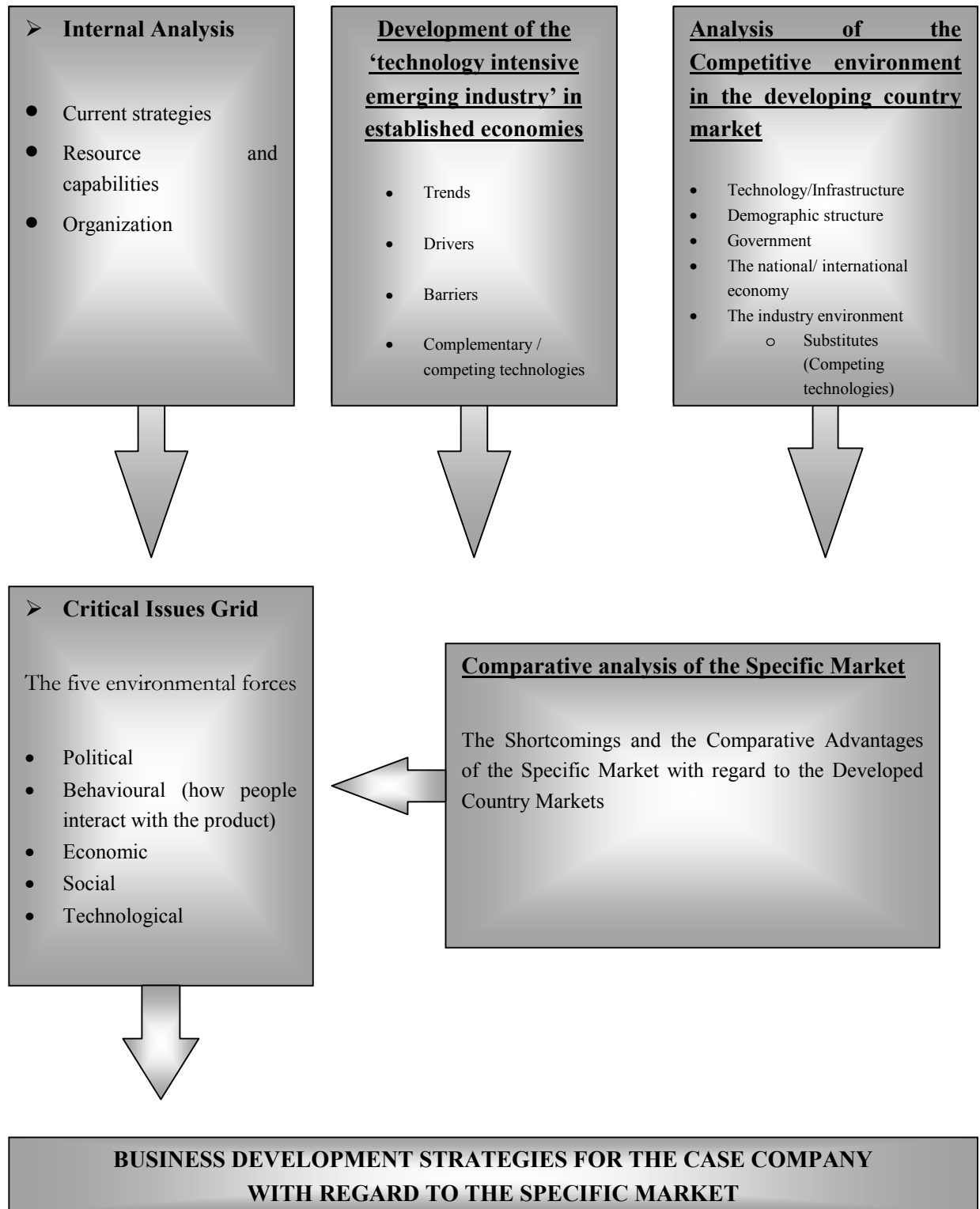
In the light of these two assumptions, we came up with the following framework. The figure below briefly portrays the structure of the conceptual framework. A more comprehensive description of each stage is given in the following sections.

Figure 2.1 The outline of the theoretical framework of the study



Source: Own

Figure 2.2 The outline of the theoretical framework of the study (Detailed version)

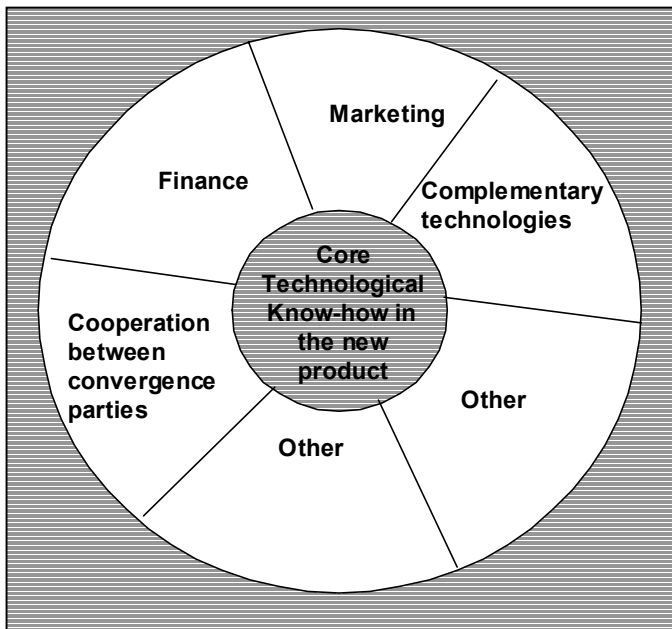


Source: Own

2.2 Development Of The ‘Technology Intensive Emerging Industry’ In Established Economies

In this part of the analysis we aim to (1) define the industry, (2) introduce the value chain and the significant actors, (3) list the drivers and barriers to the emergence of the industry and (4) evaluate the competing/ complementary technologies. To do that, we use a modified version of Grant’s complementary resources grid.

Figure 2.3 Complementary resources



Source: Grant (1998) p. 271

According to Grant, bringing new products and processes to market requires more than invention, it requires ‘the diverse resources and capabilities needed to finance, produce and market the innovation. These are referred to as complementary resources. We have included a new component to Grant’s model, cooperation between convergence parties and taken out some of the components that were irrelevant for our study.

The characteristics and availability of the complementary resources required to commercialise an innovation are **critical to the appropriability of the returns to an innovation**. Our main research problem emphasizes ‘profitable growth’. Thus, one of the main ideas of our research is to find solutions to maximize the

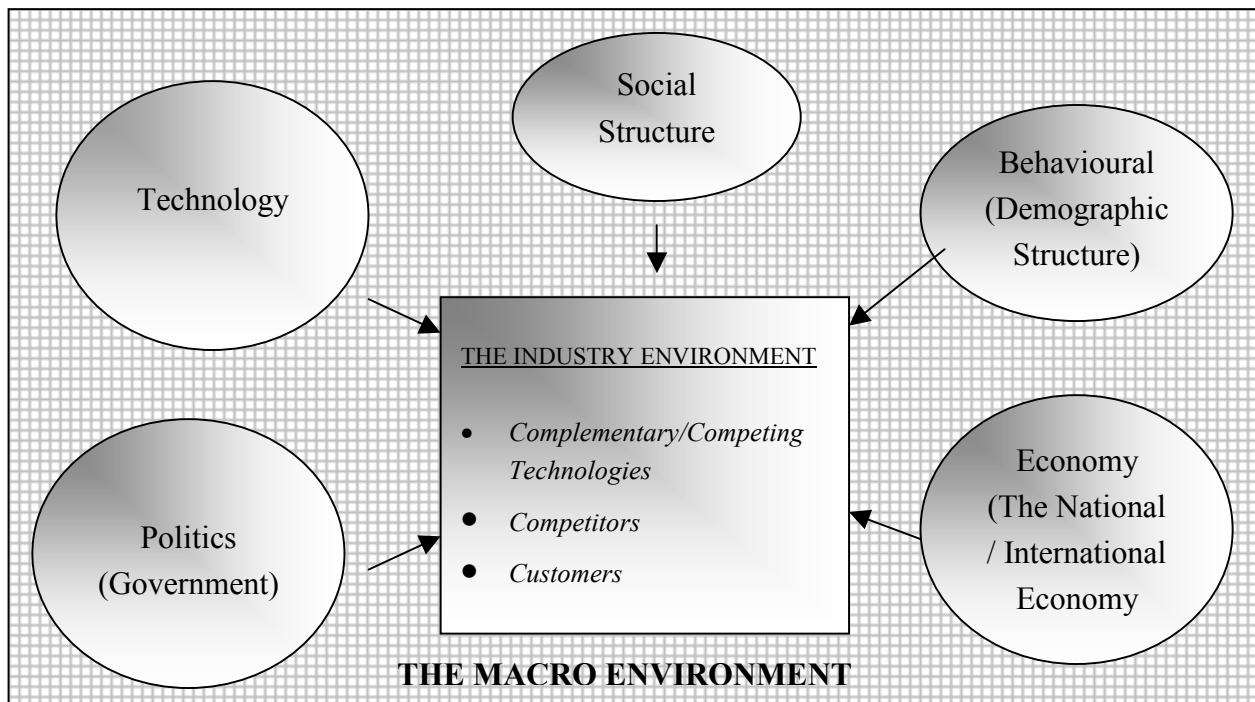
return and increase the appropriability for the case company in the adoption process of the new product.

Grant (1998) also argues that if the required complementary resources are owned by other firms or individuals, then the returns to innovation are shared between the innovators and these owners. Where these resources are generic, these owners have less bargaining power, which encourages the adoption of the new product and enhance its returns. In a similar way, the requirement for highly-specialized complementary resources limits the returns to the innovator and discourages the adoption.

2.3 Analysis of the Competitive Environment in the Developing Country Market

To visualize the competitive environment, we have decided to modify Grant's (1998) 'Business Environment Model'. Here, we aim to analyse the "business environment" in order to determine which of the macroeconomic factors are important for the firm and its industrial environment. However, the main concern is not the deep analysis of the macroeconomic factors depicted in the model, but to determine how these factors affect the firm's industry environment.

Figure 2.4 Environmental Analysis and Industry Analysis



Source: Grant (1998), p. 53

We aim to use this model to portray the interaction between the macro-environmental factors and the company's industry environment. Thus, by focusing on the industry environment, we want to determine which of the macro-level influences are important for the firm and which are not. The idea is not to conduct a thorough macro environment or industry environment analysis but to get a picture of the **competitive environment** from the outcome of these analyses.

2.4. Comparative Analysis of the Specific Market

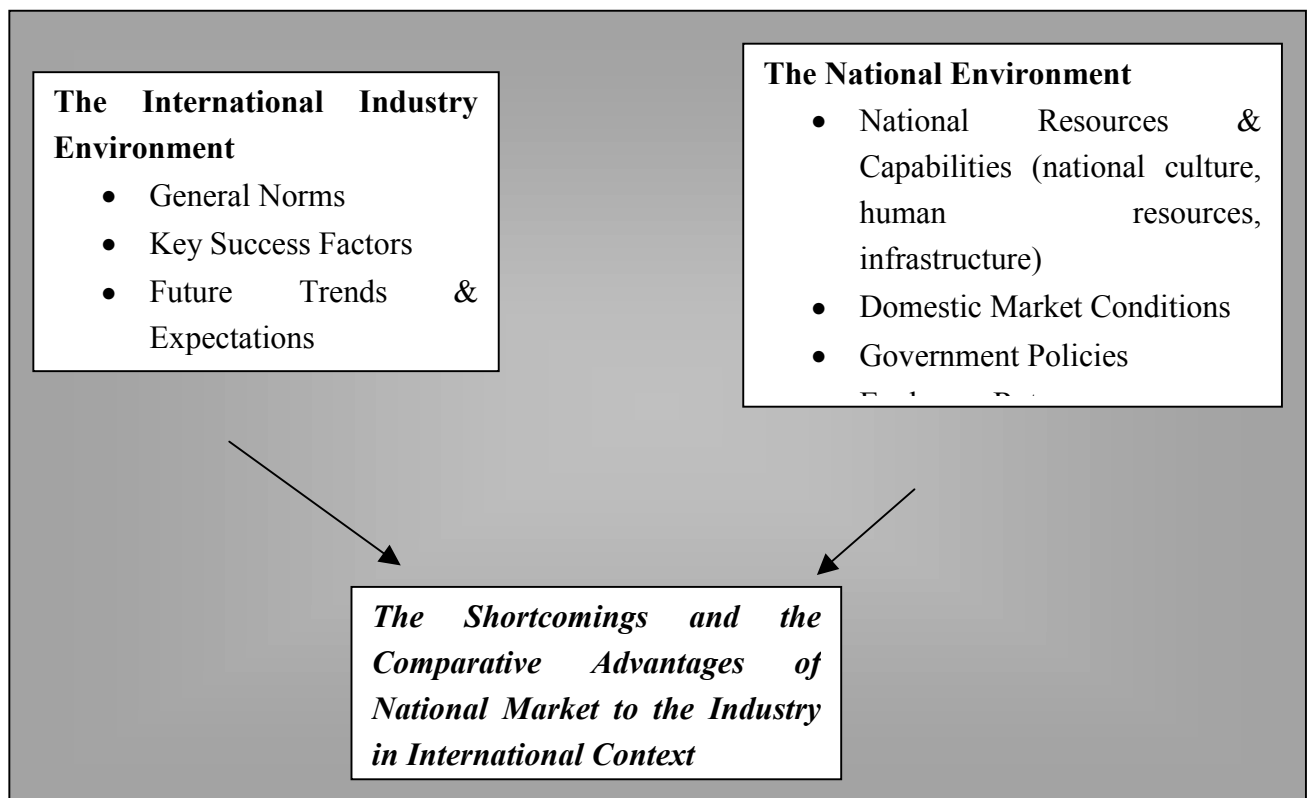
We find it important to compare the main differences in the diffusion process of an emerging industry or adoption of a radically new product in the developed and the developing economies in order to establish a base for drawing conclusions and making recommendations on business development strategies for a company operating in that particular industry. By doing that, one might be able to take advantage of the already established business models, business applications, and success and failure stories in the developed markets. Thus, it could be possible to constitute a guideline for modification and

adaptation of these processes to the developing country market environment. In our case, this would be the Turkish Mobile Internet market.

We compare the national environment with the international industry to find out the major key success factors that will lead the company in focus to achieve a competitive edge.

We base this market comparison on Grant's model, "Analysing Competitive Advantage within an International Context". Doing this, we will not only be able to determine the certain aspects to be modified but also discover the comparative advantages of the Turkish market that could encourage the adoption of the product and expansion of the industry in the developing country market.

Figure 2.4. Analysing Competitive Advantage within an International Context



Source: Adapted from Grant (1998), p. 337

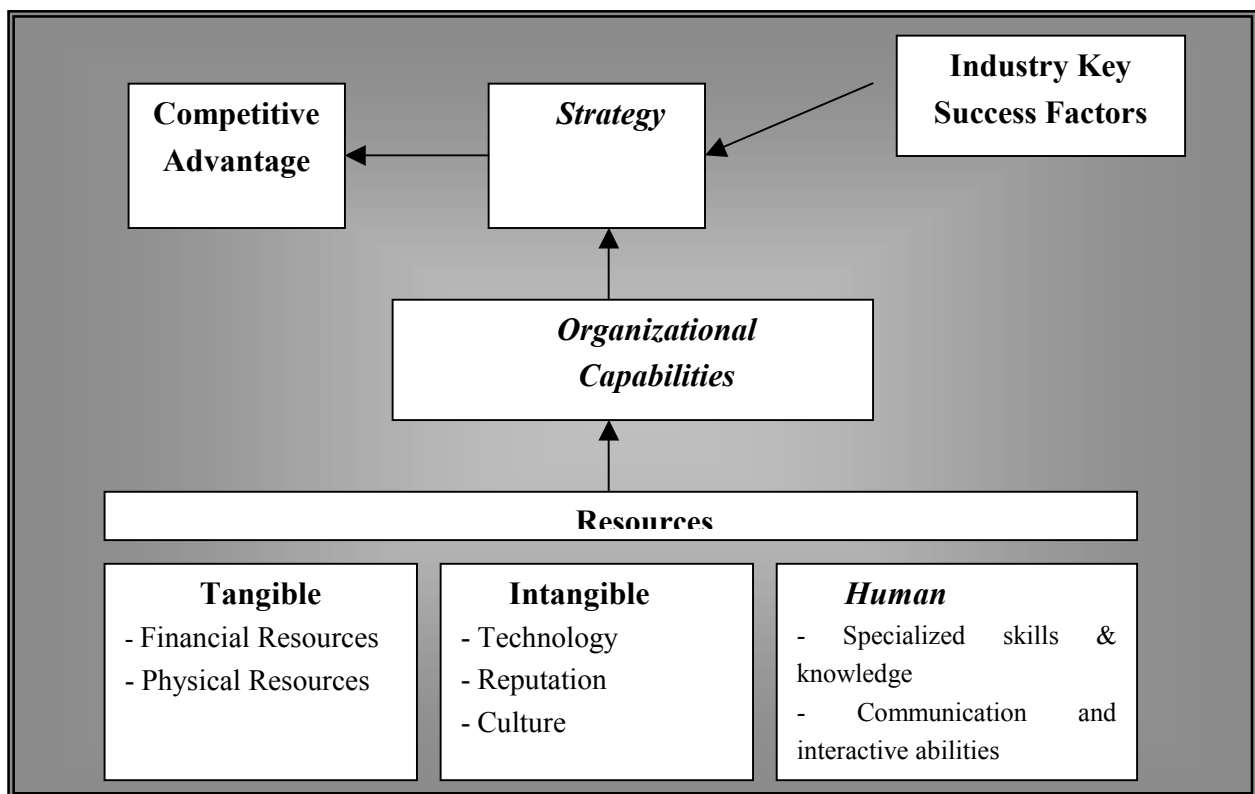
2.5 Internal Analysis

After determining the shortcomings and the comparative advantages of the national market with regard to the international context, we attempt to find out

how a company can pursue the development strategies within this context. We consider it essential to make an internal analysis in order to match the resources and capabilities of the company with the general market requirements.

The main problem at this stage emerges as the company might experience difficulties to delegate the corporate resources and capabilities for the fulfilment of the strategies determined. Therefore, we decided to use Grant's "The Relationships among Resources, Capabilities and Competitive Advantage" model in order to present how a company relates to the industrial environment and how it can create the potential to achieve competitive advantage by utilizing the resources and capabilities at an optimum level.

Figure 2.5 Internal Analysis - The Relationships among Resources, Capabilities and Competitive advantage



Source: Grant (1998), p. 113

At this point, it is worth noting that the focus is not on the global strategic choices and the overall competence of the company. This analysis aims to explore how the company relates to the specific environment in the specific market. In our case, the company in focus is a giant MNC operating in all

major markets with more than 100,000 employees. Thus, we refer to the global policies and competencies only to the extent that they are related to the operations in the specific market. Therefore, a thorough analysis of the company as a whole is not relevant and should not be expected.

2.6 Critical-Issues Grid

While analysing the different environments in which a company operates, **five basic environmental forces** are particularly significant: Political, Behavioural, Economic, Social and Technological. Each of these forces affects different aspects of the product development process. Political forces appear in form of government regulations and actions, legal precedent or international agreements to name a few. For example, a political issue that would affect the development of the mobile Internet and third generation networks (3G) would be the decision by the national governments on whether to auction off the access to that frequency spectrum or simply give spectrum with a so called ‘beauty contest’ (considering the roll-out rate, coverage area, etc.). Behavioural forces come from the consumer – how consumers traditionally interact with products and how these interactions might change with the introduction of something radically new. These issues are common in areas such as electronic banking, m-commerce, etc. where firms must overcome consumer distrust in order to succeed.

Economic forces stem from the consumer and from the structure of markets. Any product that changes the ways in which consumers purchase goods and services will inevitably encounter economic forces. Internet airline ticket auctions provide a good example of how a new method of commerce can affect traditional guidelines for what is a good deal. Economic forces are also in play in the negotiations over alliances, as well as issues of scale and scope of operations.

Products that affect the way that people interact with one another often encounter social forces. E-mail, SMS and online chat are well-known examples, as whole new rules of etiquette and conduct have been invented to deal with the societal changes this product has caused.

Of these five, technological forces receives the most publicity in the media. Every day one can read about how computers with faster processors, bigger hard drives and more memory are allowing people to do more, faster. This type of rapid progress dramatically changes **consumer's expectations** of what new products can do and how much consumers are willing to pay for them.

The critical-issues grid provides a tool for identifying the key issues that may affect the product planning process. The grid places the five environmental forces in rows in the matrix and places **three points of view** (company, business ecosystem, and infrastructure) as column heads. The company is, of course, part of the business ecosystem, and the ecosystem is part of the larger infrastructure. Therefore, these three points of view bring different issues into focus.

The idea of the critical-issues grid is to keep strategic marketing planners thinking divergently enough that the fundamental issues are elicited.

Table 2.3 Critical-Issues Grid

Environments \ Focus	Company	Industry	(Business Ecosystem/Value Networks) Infrastructure
Political			
Behavioural (how people interact w/ product)			
Economic			
Social			
Technological			

Source: Cooper (2000)

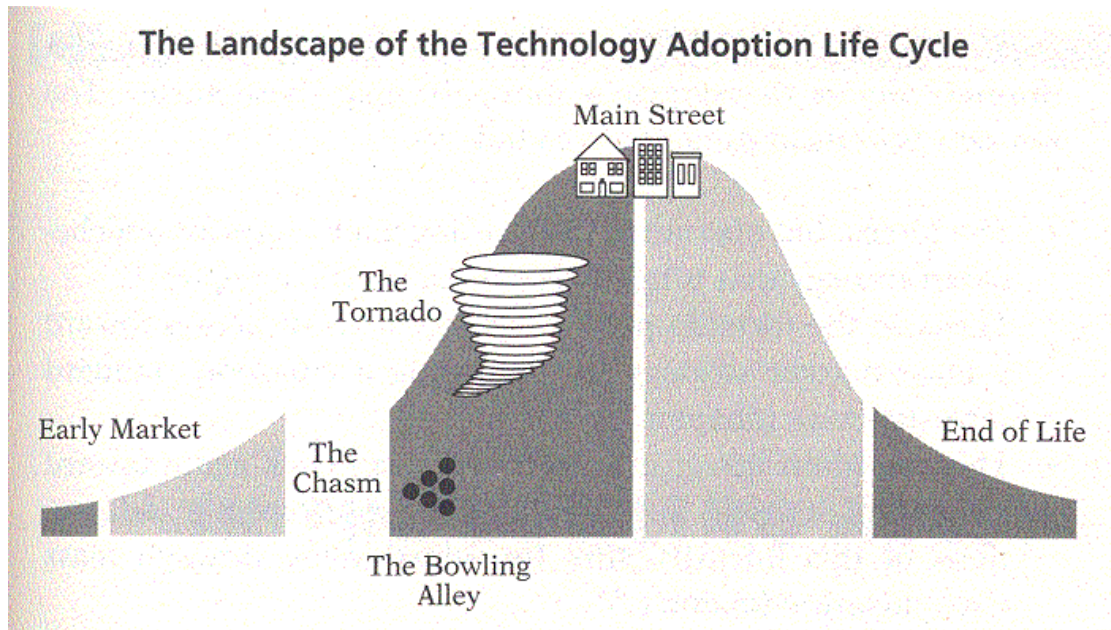
It may be possible to achieve similar aims by the traditional SWOT analysis, or using techniques such as STRATMESH (Dickson 1994) or discovery driven planning (McGrath and McMillan 1995).

We aim to use the critical issues grid to determine the key factors to address in the diffusion process of a new technology or adoption period of a 'radically new product'. These would form the platform to build the conclusions and recommendations for a specific company for the specific market.

2. 7 Diffusion Theory and Crossing the Chasm

Technology adoption life cycles have traditionally been modelled by the Bass (1969) model of diffusion of innovation. Although this approach has been extended to include the impact of marketing variables, the essence of this model still implies a single diffusion population. Mainly, the Bass model implies that a new product adopter can spread his enthusiasm to anyone else in the market. Recently however, Moore (1994) articulated a **different** theory of the market adoption of high-technology products. While still segmenting the market into innovators, **early adopters, early and late majority, and laggards**, Moore distinguishes two clearly distinct diffusion populations. On the one hand, technology enthusiasts (innovators) and business visionaries (early adopters) jump early onto product bandwagons that may not be ready for the mass market. On the other hand, the pragmatist (early majority) and conservatist (late majority) segments wait until the product is accepted even commoditized before buying. In a major departure from standard diffusion theory, Moore asserts that the pragmatists of the early majority are not influenced by technology enthusiasts or business visionaries. **Therefore, the major challenge lies in crossing the chasm between the early adopters and the early majority.** Translated into modelling terms, these assertions imply a different set of diffusion equations than those in the Bass model.

Figure 2.6. Moore's Diffusion theory



Source: Moore (1994)

2.7.1 Moore's diffusion theory in more detail¹¹

Moore (1994) articulates a theory of high-technology marketing strategy centred on his view of the technology-adoption life cycle. Standard diffusion-of-innovation theory articulates five phases or segments: innovators (this segment does not create the new fashion or technology, but are the very first to try it out – like the very first kids in school to wear a new fashion), early adopters (the ones who spot new trends early and jump on board), early majority (the first mass audience that turns a novelty into a fad), late majority (the one who adopt a fashion so they don't look old fashioned), and laggards (the ones who would just as soon look old fashioned, but may buy if there is nothing else in the store).

Moore's adaptation differs from standard diffusion-of-innovation theory by postulating different dynamics between phases or segments. The innovators are equated to the technology enthusiasts who adopt technology based on its "coolness" or power and are willing to patch together workable solutions from whatever pieces are available. The early adopters are business visionaries, who

¹¹ To give a better insight of the model, we have largely used the simplified explanations and examples from Cooper and Noble (1999) in this section.

foresee an opportunity to establish high visibility and competitive advantage by jumping early onto product bandwagons that may not yet be ready for mass markets. In a major departure from standard diffusion theory, Moore asserts that the pragmatists of the early market are not influenced by the technology enthusiasts or the business visionaries. Pragmatists listen only to other pragmatists. The conservatives of the late majority wait until technology is commoditized before buying. The laggards are sceptics who may never join the digital revolution of their own volition. Between the early adopters and the early majority lies the *chasm*.

We will use the critical issues grid to find ways to cross the chasm in Moore's model, which we believe is appropriate in our case.

3. METHODOLOGY

In this chapter, we will describe the methods used in this research. Our aim is to present which methods we used and why we chose particularly these ones. This chapter also helps the reader to get an idea of how the research has proceeded and has been realized. In this respect the methods and sources used in data collection are also revealed. Finally, the validity, reliability and the possible types of errors have also been discussed at the end of the chapter.

3.1. The Research Design

When we decided on the topic, the problems to attack and the purpose of the study, we also started the thinking process to design the research, determine the strategy and the methods to use in this study.

Yin (1994) states five types of strategy that could be deployed in a research: experiment, survey, archival analysis, history and case study. Although there are many factors to be addressed when choosing a particular strategy, three of them are especially significant: the types of research problems, the extent of control a researcher has over the actual events and the degree of focus on contemporary versus historical events.

In the light of these, we decided to employ case study as the strategy in this research. Below, we try to justify and detail this decision.

3.2 Why Case Study?

3.2.1 Case study defined

Yin (1994), focusing on the research process itself, defines case study as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, *especially when boundaries between phenomenon and context are not clearly evident.*

Merriam on the other hand focuses on the end product and the unit of study and states that the most defining characteristics of case study research lie in delimiting the object of the study, the case.

The case itself is ‘a bounded system: the researcher can fence in what he/she is going to study’. Hence, the case could be a person, a program, a phenomenon, a group of people, a policy, an organization...

Our research concerns the development of a phenomenon, the wireless Internet in an emerging market. In addition, the main problem is “how can a telecommunications equipment vendor successfully implement business development strategies in the rapidly growing Turkish mobile Internet market and achieve profitable growth?” To examine this process and solve the main problem, we have decided on using case study method as a research strategy as the aim of the study is ‘to investigate a contemporary phenomenon within its real-life context¹², and this phenomenon is intrinsically bounded in itself.

3.3. Why Ericsson and the Turkish Market?

The diffusion of the Wireless Internet and the effects of the emergence of this new platform has been one of the most discussed issues after the ‘Internet Boost’ of the 90s. However, there was very little academic research targeting specifically this field. Thus, we have decided to study this phenomenon. As it is generally the case in qualitative research, we used Purposeful Sampling approach and selected the Ericsson subsidiary in Turkey as it reflects the average phenomenon and situation of interest¹³. Another leading factor was that Ericsson is traditionally a transparent company and has always been open in sharing knowledge. Thus, this choice was convenient for us as well¹⁴.

¹² As defined by Yin (1994)

¹³ Typical sampling

¹⁴ Convenience sampling

3.4. What Kind Of Case Study?

3.4.1 Characteristics of case study

Case studies can be distinguished, according to Merriam (1994), by their *four main characteristics*, which are particularistic, descriptive, heuristic and inductive.

Table 3.1 Characteristics of case study

<p>1. Particularistic –The case study focuses on a particular situation, event, program, or phenomenon. The case itself is important for what it reveals about the phenomenon and for what it might represent.</p> <p>2. Descriptive –The end product of the case study is a rich, thick description of the phenomenon under study.</p> <p>3. Heuristic –The case study illuminates the reader’s understanding of the phenomenon under study.</p> <p>4. Inductive – This characteristic relates to the conclusions drawn from the case, which are derived by reasoning from a part (the case) to a whole, from particulars to generals, or from the individual to the universal. That is the conclusions are generalized.</p>

Source: Yin (1994)

Throughout this study, we try to satisfy each of these characteristics.

3.4.2 Single-case vs. multiple-case studies

Case studies may include a single-case or multiple cases. For reasons of convenience, we have decided to use a *single case* and generalize our conclusions from this particular situation.

3.4.3 Intent of the study

Case studies can also be described by the *overall intent* of the study:

- *Descriptive* case studies present a detailed account of the phenomenon under study. They are neither guided by established or hypothesized generalizations nor motivated by a desire to formulate general hypotheses.

These kinds of studies are useful in presenting basic information about areas where little research has been conducted.

- *Interpretive* case studies also contain rich, thick descriptions and they are used to develop conceptual categories or to illustrate, support, or challenge theoretical assumptions held prior to the data gathering. The model of analysis is inductive in this kind of studies.
- *Evaluative* case studies involve description, explanation, and judgement.

Different parts of the study reflect different intents. Telecommunications and the Internet are the two most dynamic industries. Thus, it is extremely hard to make meaningful and long-lasting generalizations. Due to that, our main aim has been to provide the reader with an extensive description of the case. Nevertheless, at the end we dare to come up with our own judgements and conclusions. In this respect, we may refer to this study as an evaluative case study.

3.4.4. Abductive approach

As mentioned above, the research area, mobile Internet, is a rather new phenomenon and there is very little, if any, academic study concerning specifically this issue. The analysis of such dynamic industries, especially when a radically new product, an example of *discontinuous innovations*¹⁵ is the issue as in our case, is rather problematic. When looking for theories to employ in our study, we had difficulty in matching a relevant one with our case. Thus, we have constructed our own theoretical framework by modifying and integrating the existing ones. In that respect, one can say that in this study we use an *abductive approach*, which is defined as building a case study on new or developed theories as well as old theories¹⁶.

¹⁵ Innovations that change the dimensionality of the consumer decision and revolutionize product markets as described by Cooper (2000)

¹⁶ Alvesson & Sköldbberg (1994)

3.5 Data Collection

3.5.1 Qualitative vs. quantitative data

The aim of both the quantitative and qualitative research is the same: to provide a better understanding of the problem and to form a firm basis out of which the conclusions will be drawn. Case studies do not normally aim to generate statistical data and to come to conclusions derived from it. Thus, unlike quantitative research that aims to quantify the result and focuses on similarity and width, case studies can be based on any mixture of quantitative and qualitative evidence¹⁷. In this research, we rely mostly on qualitative data rather than quantitative data. This is mainly due to the fact that the mobile Internet is a very recent phenomenon and thus there is not much historical data or reliable statistical information on this issue yet. However, we use statistical information on the current situation of the market and industry in focus and quantitative projections (though generated by private companies and mostly subjective) for the future wherever appropriate.

3.5.2 Primary and secondary data

We rely both on primary and secondary data in our analysis, which form the basis of our conclusions. Below the details of the data collection process are given.

3.5.3 Primary data

When we started planning the data collection process for our research, we have realized that there is very limited reliable secondary data source available on the mobile Internet and the Turkish Internet market in general (Both the wireline and wireless Internet). Having realized that, we understood we had to generate most of the data, especially concerning the Turkish market, ourselves. The easiest and fastest way to achieve this was to go to Turkey and meet with the professionals in the industry.

¹⁷ Yin (1994)

We travelled to Istanbul in early October and stayed there for almost a month. As Istanbul is the financial and business centre of the country almost all the major actors in the mobile Internet industry are located in this town. This trip was to a large extent financed by the Turkish subsidiary of Ericsson, Ericsson Telekomunikasyon A.Ş.

During our stay, we conducted numerous interviews with professionals from different parts of the industry. The results of these interviews constitute the majority of primary data generated in this study. We can add our observations and interactions with the society, and the consumers in particular, to that.

3.5.3.1 Interviews

As our aim in this study is to explore the diffusion process of the mobile Internet industry as a whole, we have selected interviewees across a large spectrum, which covers more or less the whole value chain of the industry. The interviewees were professionals serving in Network Operators/Service Providers, Equipment Vendors, Internet Service Providers (ISPs), Content Providers, etc. Thus, a survey-like highly structured and standardized interview format would not be convenient and feasible. Due to that, we have used a semi structured interview format, which is a mix of more and less structured questions¹⁸. Another factor that led us to use this format was the lack of our pre-understanding of the subject and of the interaction between different parts of the value-chain.

We have used an interview guide as a base in our interviews¹⁹. These questions were adapted to the specific person depending on his position in his organization, his knowledge and general attitude towards information sharing.

The duration of each interview varies between thirty minutes and one hour.

¹⁸ Merriam (1994)

¹⁹ See Appendix B

All interviews conducted in Turkey were made in person although we have had mail correspondence with many other professionals in the industry in Sweden, Finland and Denmark.

We have also had the chance to meet and exchange information with some of the companies that are directly involved in mobile Internet industry or that have products available on this platform.

Table 3.2 Interview Evaluation Table

Name	Organization	Title / Business Area	Main Issues Discussed
Gökhan Karakuş	Superonline/ Incubator	Business Development Manager	Incubation, Access to Venture Capital, The attitude of foreign investors
Bora Şahinoglu	YBS A.S.	President	Content Providers, Wireline Penetration,
Ali Kesan	Ericsson Turkey	Vice President / Terminals	Consumer Products, Distribution, Trends in the Market, Competition,
Feyyaz Atalay	Ericsson Turkey	Dep. Manager / Data Networks	The role of ISPs, Ericsson's situation in the market
Cenk Kırbaş	Ericsson Turkey	Corporate Mobile Internet Solutions	Overall situation of the Turkish Market, Organization of the Company, Competition, Infrastructure
Rıza Cem Erkun	Turkcell	Marketing / Product Development Manager	The Role and the Future of Network Operators, Vertical Integration, Business Models on the Mobile Internet (MI) Platform
Melih Özdemir	Turkcell Group ²⁰	Business Development Manager / Mobile Internet Solutions	Turkish wireline Internet market, prospects for the future, the attitude towards MI in the Industry
Sibel Köksal	Ericsson Turkey	Head of Direct Channel	Services appealing to the new platform, consumer preferences and attitudes toward MI, killer application
Emre Yeşil	Ericsson Turkey	Product Manager/ Terminals	Ericsson's position in the market for handsets
Yeşim	Ericsson Turkey	Manager / Corporate	Brand management, HQ –

²⁰ This is a new organization still in the process of establishment, aiming to coordinate the activities of the TIME related companies of the holding company. These are namely Superonline, Turkcell, DigiTurk. This new formation was yet to be announced at the time this thesis was written.

Yalınkılıç		communications	Subsidiary Relationships, Decision-making Process in Ericsson, Cultural accord, Monitoring Competition, Managing the Network of Relationships
İşıl Levent	İştim Account	Datacom	Relations with the new mobile operator İstim ²¹
Mr. Dinçer	İştim Account		Relations with the new mobile operator İstim
Mikal Stenhamn	ICtech, Instant Context Technologies	CEO	The Swedish Mobile Internet Market, Competition, Financing the New Technology, Barriers and Drivers of MI in the Developed Economies

Source: Own

3.5.3.2 How do we use the collected data?

We have grouped and analysed the data in accordance with our research model presented in Chapter 2. We use this information throughout the following chapters where we present our analysis. We do not tie each and every opinion and information given in the analysis to a specific person or interview. We do that only when a statistical data gained from the interviewee is used. The source for the general statistical data concerning the whole industry, that has been gained from our interviews within Ericsson, is not tied to individuals and is referred to as ‘Interviews-Ericsson Turkey’. Unless otherwise stated, the reader can take it for granted that the opinions and qualitative data given are a result of our interviews with the industry professionals.

3.5.4 Secondary data

We have used online resources, previously written reports regarding the industry, books, journals and information generated by companies within the industry to present the background and the general outlook of the industry. We have also used some material supplied particularly by the case company, Ericsson. Reference to most of these resources is made in the following

²¹ Isbank-Italia Telecom consortium

chapters. We have also read many other articles and books to deepen our pre-understanding of the issue although reference to all these is not given.

3.5.5 Sources of data

A major strength of case study data collection is the opportunity to use many different sources of information²². Thus, we have tried to use as many different sources of data as possible in our data collection process. We believe we have done our best to get a diverse portfolio of sources regarding both the primary and secondary data. We have conducted interviews with people from different parts of the industry. We have also managed to interview people from different levels and parts of the case company in focus. When it comes to secondary sources of data, we have used many different sources from different countries generated by various companies concerned. However, we acknowledge that there is always space for improvement when it comes to diversity.

3.6 Degree of Quality

Yin (1994) acknowledges the significance of four main standards throughout the conducting of a research *study: construct validity, internal validity, external validity and reliability*. We discuss each one in detail below.

3.6.1 Validity

Validity deals with how the research findings match with reality. It is divided into three: construct validity, internal validity and external validity²³.

3.6.1.1 Construct validity

Construct Validity deals with the ability of the researcher to establish the right measures and framework for the concepts to be studied²⁴. Using *multiple*

²² Yin (1994)

²³ *ibid*

sources of evidence may provide high construct validity for a case study. We have already discussed that above. Another issue concerning construct validity is the overall framework used to study the phenomena in focus. We have tried to be as clear as possible in defining the concepts and why we have particularly used them to increase the construct validity of the study.

3.6.1.2 Internal validity

Internal validity deals with the question of how research findings match reality²⁵. A few issues arise when measuring internal validity such as (1) Do the findings capture what is really there?, (2) Are investigators observing/measuring what they do?, etc.

We have spent considerable effort to ensure that this report satisfies these criteria. We have tried to preserve the logical flow and connection in our analysis. However, in qualitative research reality is holistic, multidimensional, and ever changing. It is not a fixed, stable and objective phenomenon waiting to be discovered. Instead, reality changes over time and in accordance with the context and the background and the mindset of the people that deal with it. In short, in qualitative studies, reality is an interaction of the researcher with the environment in focus. To ensure that we reflect the real situation of the industry and the business environment the research deals with, we have used a large variety of resources and held discussions with as many people as possible in our interpretations and analysis.

3.6.1.3 External validity

External validity questions the applicability of the research findings to other situations. In other words, it deals with the issue of whether the study's findings could be generalized beyond the immediate case study²⁶.

²⁴ *ibid*

²⁵ Merriam (1994)

²⁶ Yin (1994)

It is not possible to reach a statistical generalization from our study, as it is a qualitative research. Case studies rely on generalizations of analytical nature. In that respect we believe there is a possibility to generalize the results of our survey for companies similar to our case company, that operate in a similar business environment, namely an emerging market. On the other hand, the industry we deal with is a rapidly changing and dynamic one. Thus, the readers have to apply the main concepts to the situation they are in.

With this study, we have tried to take a step forward in exploring the diffusion process of a radically new product in an emerging market. However, due to limitations of resources and time, we have not come as far as we wish. Nevertheless, the findings of this study, especially the parts where we deal with the cultural barriers and consumer attitude towards the new high-tech products could be generalized to a significant extent.

The research model we have used to make a comparative analysis and to form an action plan based on it, is already a modification and combination of existing theories. Thus, this model could also be used in a similar study.

3.7 Reliability

Reliability refers to the extent to which research findings can be replicated. This criterion is rather problematic in the social sciences because human behaviour/ observations are hardly ever static. In that respect, it is likely that a researcher even if he/she follows the same procedures may reach a slightly or sometimes significantly different result when repeating an earlier study.²⁷

We believe that our analysis concerning the current situation of the business environment has a relatively higher level of reliability. Our analysis concerning the Turkish society and characteristics of the emerging markets could also be considered more reliable. On the other hand the last parts of the reports are a result of our own interpretations of the data collected mainly from the

²⁷ Yin (1994)

interviewees and thus are largely bound to our own background and mindset. We could consider these parts to be less reliable.

3.8 Various Types of Errors

In case studies, errors may occur especially in the data collection and the interpretation process. In this study, we use many sources of secondary data. As historical data is very limited on this new platform, the mobile Internet, much of the numerical data used are assumptions and forecasts for the future. There is a possibility that this data could contain some errors. To avoid this we have tried to collect data from as many sources as possible and compare the data given in each.

Concerning the interviews, there is a possibility that we have misinterpreted some of the information given. We have tried to overcome this by recording each interview and trying to decode them carefully.

Another possible factor that could have caused errors in some parts of the study is that as researchers we are both natives of the market of the country the research focuses on. This might have formed certain biases in the interpretation process as well. On the other hand, this could also be considered as an advantage in some instances.

4. MOBILE INTERNET

In this chapter, we will follow a descriptive approach in order to define and clarify the main aspects of this new technology. We will also bring up the development path of the market, particularly in Europe. We find it important to establish our presentation on concrete basis by defining the technology at this initial stage.

4.1 Definition of Mobile Internet

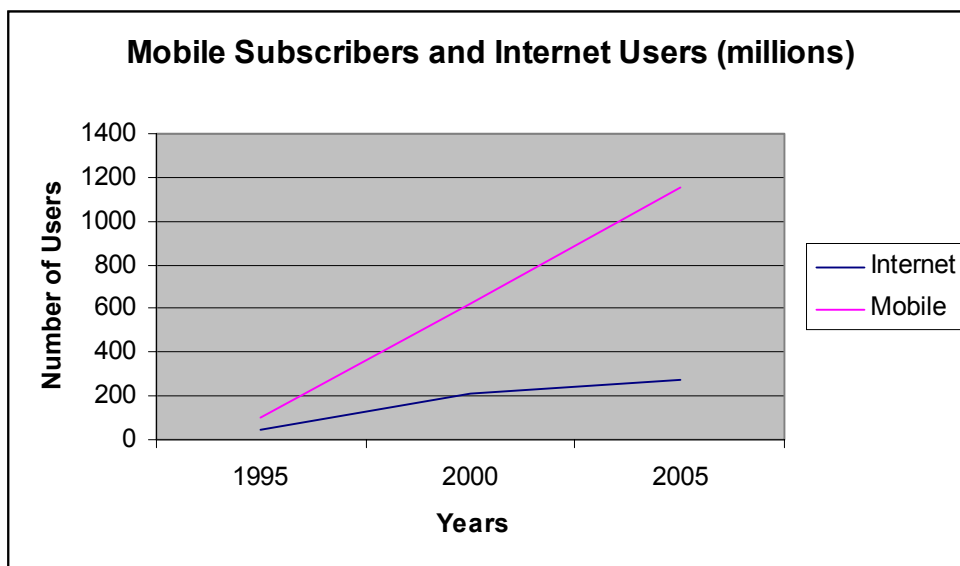
The newly emerged concept Mobile Internet has come to signify the convergence of the two fastest growing technological phenomena of recent years: the Internet and mobile telephony. Mobile Internet is simply an enabling technology, a set of rules for transforming Internet information so that it can be displayed on the small screen of a mobile telephone or another portable device. It is the essential link between the Internet on the desktop and the increasing capabilities of mobile phones, personal organizers and other wireless devices.

Within a few years, the consumers will be able to use wireless services to easily check up on their stock portfolio, log on to their company intranet, check the weather in cities they visit, and read about restaurants where they might wish to eat. These developments are the result of improved mobile networks, the emergence of open Internet-based standards, and better technology for hand-held devices. Given this circumstance, the market for wireless information is expected to boost in the next few years. There are rather strong drivers behind this judgment. Sources of content are proliferating at an explosive rate, along with Internet and e-mail usage. Meanwhile, the number of professional people who spend time outside their offices is increasing, and they need portable devices to stay in touch. According to an estimation made by Ericsson, there will be nearly 600 million mobile Internet users by the year 2004²⁸.

²⁸ Svenska Dagbladet, 14 November 2000

Many experts believe that m-commerce will prove to be the "killer application" that will drive growth in this new segment of the mobile communication platform after the market for conventional voice calls has been saturated. However, the first question to be asked here is that the people can already buy and sell online by using their desktop or portable computers, therefore what will m-commerce basically offer the users? We will discuss this issue in more detail during the following chapters. However, we should say that mobile Internet and its killer application m-commerce would provide mobility for the consumers in the first phase. People can take their mobile devices with themselves more or less wherever they go, whereas the situation is a little problematic for the devices such as desktop computers at their offices and homes. Depending predominantly on this reason, some analysts believe that within three years more people will be accessing the Internet from mobile phones than from office or home computers²⁹. In addition to the mobility factor, we see the access to the real-time information as the competitive edge for the mobile Internet over the conventional (wireline) Internet. In addition, the penetration rate for the PCs is much lower than the mobile phone penetration rate. This means that there are more people that may be willing to prefer mobile Internet (Figure 4.1).

Figure 4.1 Number of Mobile subscribers vs. Desktop users



Source: "Understanding the WAP" survey by Financial Times, 14 June 2000

²⁹ Financial Times, 14 June 2000

4.2 Relevance of the ‘Mobile Internet’ Concept

During our surveys and interviews for the preparation of this study, we have encountered several discussions that are focused on the “mobile Internet” concept. It has been mentioned that it is too early to pronounce this term while the launch of the WAP protocol has just taken place. WAP protocol can be accepted as a first step for the mobile Internet, but still it is much further from accessing Internet via mobile phones. When WAP was launched, it was mentioned together with the mobile Internet, which harmed the product image of the WAP enabled devices. Although WAP is unquestionably an important enabler for accessing information on the Internet and providing greater call management functionality, there is a danger that user expectations have not been managed appropriately. WAP is not a surfer’s remedy, nor it is a substitute for other technologies, such as PC access to the fixed Internet.

There is a lot of confusion, among both users and the industry players regarding what WAP is capable of delivering at the moment and in the future. Only simple information services are currently available over WAP. There are still several unresolved technical issues that are preventing delivery of services that will add greater value, such as the efficiency of the access. These are expected to be resolved by GPRS (General Packet Radio Service) and the convenience of the terminals for mobile Internet applications.

Today, WAP technology is quite primitive compared to the coming technologies that will enable us to connect Internet via mobile phones. For a website to be displayed on the mobile phone’s screen, it needs to contain data in a WAP format (WML - Wireless Markup Language). WAP is a kind of enabling software that effectively allows simple menu-structured web pages to be stripped of complex graphics and relayed to the mobile telephone³⁰. However, WAP services are delivered over the current GSM (Global System for Mobile Communication). Therefore, it is an extension of the existing technology and lacks the capacity to generate the mobile Internet revolution, which will create value for the end users. WAP was nothing more than an

³⁰ Financial Times, 14 June 2000

introduction for MI technology. We should still wait for the coming technologies and a sufficient amount of WAP based content in order to browse the Internet via cellular phones.

Controversial situation of the WAP technology lies behind this point where the users have expected more things from WAP than it could really serve. Consumers preferred WAP based devices in order to access Internet, but the result was a frustration when they noticed that they could not surf the Internet by using their devices. There has been a confusion of concepts. Consumers perceived the meaning behind mobile Internet as wireless access to Internet, where wireless Internet and mobile Internet are totally different concepts. In this stage of technological development, “mobile Internet” should have been named with another term, like NTT DoCoMo, Japan's leading cellular phone operator did with the “i-mode” in Japan.

NTT DoCoMo has opened a new era with this new technology, which offers continuous Internet access. Launched in February last year, it now has reached to 16,359,000 million subscribers (as of December 17). This new service lets the subscribers surf through a few hundred websites. These websites are linked to NTT DoCoMo’s portal page where they are modified to be viewed via cellular phones.

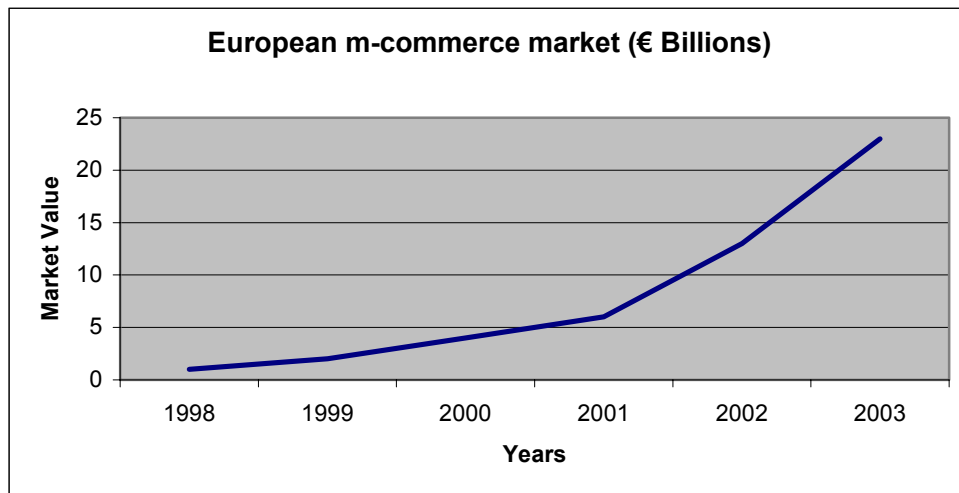
4.3 Background

In opposition to the development of the Internet, Europe left North America behind in the growth of the mobile communication market. Therefore, European market has an important advantage over North America in this initial stage of MI. European m-commerce market is expected to grow from Euro 323 million last year to Euro 23 billion in 2003 and is currently about two years ahead of the US in terms of development (Figure 2).³¹

³¹ Durlacher Research (1999)

The reason behind this situation is that Europe has adapted the mobile communication technologies in a more successful way than US did. Europe could establish the infrastructure on a single standard called GSM (Global System for Mobile Communications), whereas there is still not any unique standard within US and the fact of local calls' being included in the fixed fees, neutralized the potential interest for the mobile devices.

Figure 4.2 The growth of European m-commerce market (1998-2003)



Source: "Understanding the WAP" survey by Financial Times, 14 June 2000

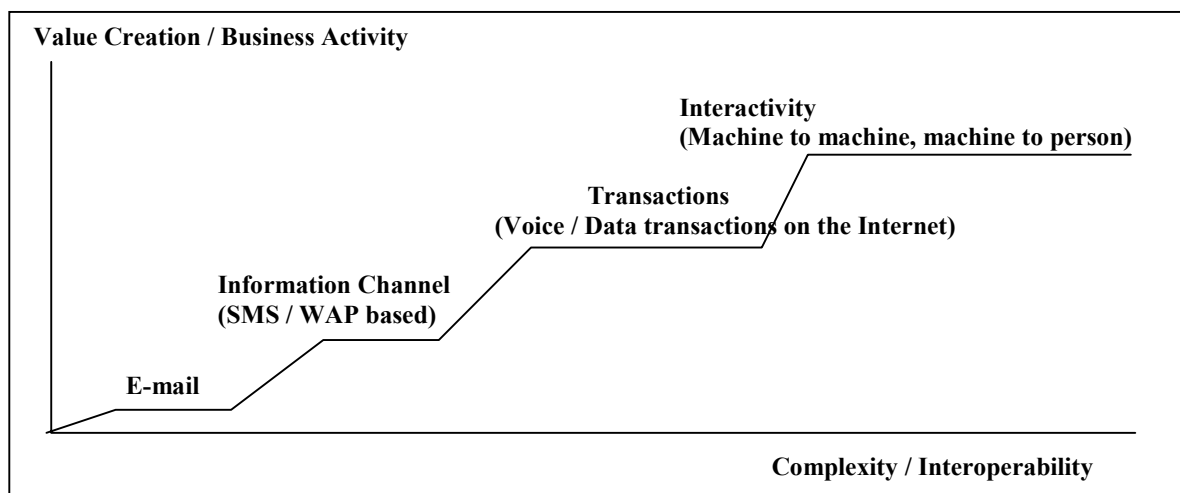
Currently equipment vendors are creating over-hyped expectations on the development of the mobile commerce market. However, mobile web browsing will not become a reality before 2003 when the third generation mobile technologies will be initiated.

In our opinion, the applications that provide differentiated facilities will benefit most in the mobile Internet market. People access Internet and utilize its benefits one way or another. However, there are several advantages of mobile Internet compared to wireline Internet. The actors in the industry whether they are equipment vendors, software manufacturers, content providers or network operators will get the biggest share providing that they offer services that can hardly be done via other medium to access Internet. We find the mobility and possibility to send out real time information aspects of MI as two important assets in the growth of the mobile Internet.

In addition to these factors, Durlacher Research (1999) mentions security and convenience. It is accepted that bringing the cellular phones into play as credit cards is much safer than shopping online using the conventional credit card since the SIM (Subscriber Identification Module) card, provides authentication of the owner and enables a higher level security than currently is typically achieved in the fixed internet environment. Enhanced functionality that will become available on tomorrow's devices will offer convenience by providing localization, instant connectivity and personalization. Localization of services and applications will add significant value to mobile devices. Knowing where the user is physically located at any particular moment will be the key to offering relevant services that will drive users towards transacting on the network. Instant connectivity to the Internet from a mobile phone is becoming a reality already and will fast-forward with the introduction of GPRS (General Packet Radio Services) services. Personalization is, to a very limited extent, already available today. However, the emerging need for payment mechanisms, combined with availability of personalized information and instant internet access via mobile portals, will move customisation to new levels, leading ultimately to the mobile device becoming a real life-tool.

The scope of the potential offerings coming with the new technologies could be estimated by considering the position of today's technologies on the MI development path. According to Durlacher Research (1999), the development of the mobile Internet will come forward in the following stages.

Figure 4.3 Mobile Internet development model



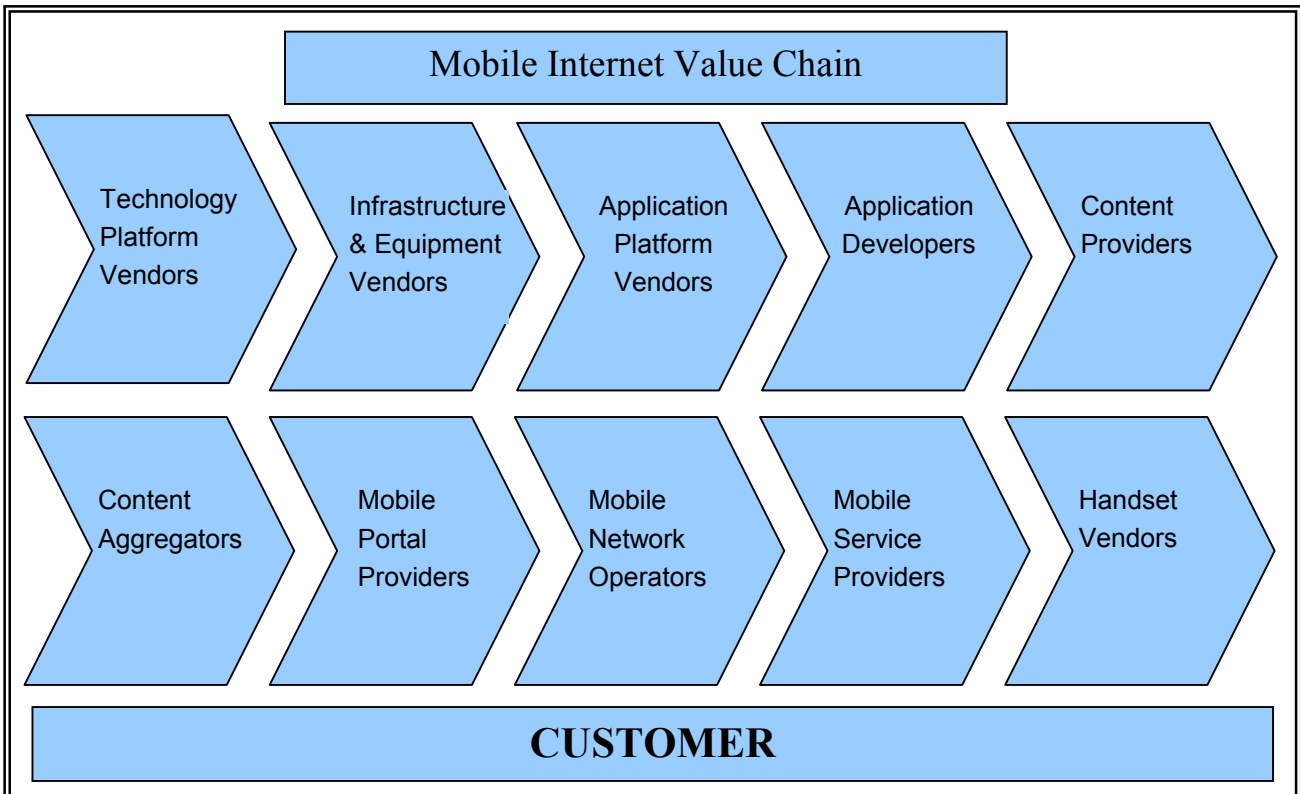
Source: Adapted from Durlacher's Mobile Commerce Report

It is obvious that the market is growing at a significant pace and it is still an area waiting to be discovered by entrepreneurs. The authorities generally discuss the future of this new technology, some approach in a sceptical way while others prefer to be more optimistic. We believe that the market tends to grow significantly, but the crucial issue is that which players in the telecom industry will dominate this brand new market. We will continue by identifying the potential players that are expected to emerge in the short-run.

4.4 The Mobile Internet Value Chain

In this section, we aim to introduce the value chain of this emerging platform. Mobile Internet is still in its early phases. Although companies such as NTT DoCoMo have managed to attract millions of users for their services, it is still not clear which business models will emerge and how the revenues will be shared among the actors of the value chain. Below we give brief information about each part of the value chain.

Figure 4.4 Mobile Internet Value Chain



Source: Adapted from Durlacher Research (1999)

4.4.1. Technology Platform Vendors

The technology platform vendors are delivering the operating systems and micro browsers for mobile devices such as smart phones and communicators. The battle for the dominating OS (Operating System) has been reduced to two major camps of players, Microsoft and its followers with Windows CE on the one hand and Symbian with Palm on the other hand.

The micro browser market is today largely dominated by Phone.com (formerly Unwired Planet), who have gained support from all major mobile phone manufacturers except Nokia and Ericsson, who are marketing their own micro browser products.

4.4.2. Infrastructure Equipment Vendors

The leading suppliers for mobile network infrastructure equipment: Motorola, Ericsson, Siemens, Nokia and Lucent, have developed solutions for mobile data, mobile Internet and thus for mobile commerce. They are creating significant hype around the entire topic and are driving the mobile industry with the speed of innovation and new technology developments such as WAP, HSCSD (High Speed Circuit Switched Data), GPRS, EDGE and UMTS. In this sense, the technology is well ahead of the market since to a large extent applications are yet to be developed which utilise these developments.

4.4.3. Application Platform Vendors

A particular key driver for providing wireless Internet applications is the availability of middleware infrastructure, i.e. WAP gateways at either the mobile operator's site or at the corporate customer's site. The companies, who have developed their own WAP stack include Phone.com, Nokia, Ericsson.

In order to drive the industry and to formulate standards, interest groups have been formed in addition to ITU (International Telecommunications Union), ETSI (European Telecommunications Standards Institute) and the GSM MoU (Global System for Mobile Memorandum of Understanding), such as the WAP

Forum, the Mobile Data Initiative, Bluetooth Special Interest Group, GAA (GPRS Applications Alliance) and the UMTS Forum.

They are setting de facto standards by assembling the key players and agreeing workable development conditions much faster than the traditional standards bodies.

4.4.4. Application Developers

Applications for the mobile environment are currently being built primarily on Windows CE, Symbian's EPOC 32, or Palm OS technology platforms. Currently, most of these applications are used off-line rather than via the mobile network. However, WAP is receiving increasing support from developers, who are going initially after the smart phone market rather than the PDA market. This makes a lot of sense if one compares the number of PDAs sold in Western Europe (1998: 1.4 million) to the number of mobile phones (1998: 90 million).

4.4.5. Content Providers

Technologically advanced content providers are moving into the mobile space to be ready for when mobile commerce happens. They are using a variety of distribution channels for their products. As the saying goes "when content is king, distribution is King Kong".

For example, Reuters is delivering its information via partnerships with Ericsson and Nokia as well as via existing portal sites, such as Yahoo! and Excite, who are building mobile portals as well. Additionally, Reuters is building its own mobile portals in a number of markets, having recognised the emerging importance of mobile as a distribution channel.

Charging for content is difficult in a mobile Internet world, even though users are accustomed to paying for value-added mobile services. One of the main problems in charging the user for content is that the Internet users are used to

the content that comes to their PCs free of charge. It will be extremely hard to convince them to pay for similar content.

The easiest way to create revenues for mobile information providers is by taking a share in the call revenues. However, this model is classic first generation and it is generally accepted that differential and dynamic charging structures (based on value) will rapidly evolve once the industry takes off. In future, advertising, sponsoring and subscription models will also be realised.

4.4.6. Content Aggregators

A new category of content aggregators is starting to emerge that repackages available data for distribution to wireless devices. The added value is in delivering content in the most appropriate package. There are already solutions that provide real-time information from the futures and options markets as well as financial market, company, political and general interest news. It is also possible to add, for example, trade data from exchanges and clearing houses the world over.

4.4.7. Mobile Portals

Mobile portals are formed by aggregating applications (e-mail, calendar, instant messaging etc.) and content from various providers in order to become the user's prime supplier for web-based information that is delivered to the mobile terminal. Mobile portals are characterised by a greater degree of personalisation and localisation than regular web portals, since the success of mobile Internet applications is dependent on **ease of use** and on delivering the right information **at the right moment**. This is referred to as the **value-for-time proposition** and, moving forward, might be a key dynamic in determining the success or otherwise of mobile (and indeed other) services. It has been estimated that every additional click-though which a user needs to make in navigating through a commercial online environment with a mobile phone reduces the possibility of a transaction by 50%. Mobile operators across Europe have put first portals out, e.g. Telia of Sweden with its MyDOF (My Department of the Future) and Speedy Tomato, Sonera with its Zed.

4.4.8. Mobile Network Operators

Operators, such as Mannesmann, Orange, Telia or TIM (Telecom Italia Mobiles), are best positioned to benefit from the introduction of mobile Internet services, because they already own a great deal of end user information and close ties with the customer, including billing relationship. Most operators aim to position themselves in a key role for mobile commerce by owning the portal and participating in the revenues accrued by services over its network. Those revenues will be significantly higher than the sheer increase in call minutes or volume, particularly as the incremental price per minute falls to zero. The mobile operator has the opportunity to become an ISP (Internet Service Provider) in the sense that the mobile network is going to be built on IP technology with UMTS and that the operator will provide a transport pipeline for content services. Therefore, numerous operators are trying to move up the value chain.

4.4.9. Mobile Service Providers

The phenomenon of mobile service providers as an intermediary for faster marketing and sales of mobile phone contracts and terminals has been seen in many European markets. The service provider has the contract and billing relationship with the customer, but does not own any infrastructure. They are buying the services at a discount of typically 20-25% and can sell them under their own brand. The mobile network operator determines the functionality of services and therefore dominates the information displayed on the screen.

However, control over the billing relationship puts the service provider in the position to offer a wide variety of services including m-commerce applications by charging goods and services directly to the phone bill, if the network operator has provisioned for it.

4.4.10. Handset Vendors

Handset vendors are critical in the value chain. Generally, customers do not shop for a particular service provider or network operator, but rather for the

handset brand. The emergence of the mobile phone as not only a consumer electronic device, but also as something personal such as a pen or watch, has created lots of value for the handset brands.

In mobile commerce, the handset vendors are a bottleneck in bringing new devices to the market, that support not only SIM (Subscriber Identification Module) Toolkit, but more importantly WAP, GPRS and W-CDMA (Wideband-Code Division Multiple Access). Innovation cycles are becoming continuously shorter, but significant mobile Internet take-off will not be realised before the right end-user terminals are widely available. The handset vendors have to develop a wider variety of products, as future applications will require different combinations of features. Handsets, optimised for music download and listening, video streaming and watching, computing, game playing or just managing one's life will become possible choices.

At the same time, mobile handset manufacturers are coming closer to the traditional PDA manufacturers, as they are both offering smart phones and communicators with combined functionality. The initial prices for the new generation of GPRS compatible devices are expected to be significantly higher, which might act as a barrier in the mobile take-off.

4.4.11. Customer

For consumers, mobile Internet will be a new experience, since thus far most of them have used their mobile phones primarily for voice, and more recently for SMS messages.

The first to utilize the mobile Internet is likely to be, as it is the case for almost all technological innovations creating consumer services,

- Teens (18 years and under)
- Students (19-25 years old)
- Young business-people (25-36 years old)

The business market can be divided into three main categories of organisations that possess distinct m-commerce needs:

- Sales-driven organisations, such as manufacturing companies and banks
- Service-driven organisations, such as consultancies and system houses
- Logistics-driven organisations, such as taxi companies or courier services

Depending on which segment it falls under, a company will become more likely to use a specific mobile Internet application, such as CRM (Customer Relationship Management), fleet management or integration of mobile devices into corporate ERP (Enterprise Resource Planning) systems.

Finally, it should be pointed out that payment agents play an important role as an enabling force in the m-commerce value-chain, although the dominant mode of payment for m-commerce services has yet to be determined. Banks have traditionally been the natural providers of payment agent services. Now they are becoming increasingly concerned about the future role of mobile operators, who allow their subscribers to charge purchased goods and services to their telephone bill (e.g. Sonera). Therefore, the banks themselves are becoming front-runners in mobile commerce in order not to become disintermediated. Merita Nordbanken and SEB of Sweden for example have invested considerable amounts and are trying hard to establish their own payment systems for e-commerce and m-commerce payments, while Visa and other payment services giants are all trying to position themselves on this new platform.

From here on, we will aggregate these group of actors that are part of the value chain into four segments for reasons of convenience and simplification. These are

- Equipment vendors (1,2)
- Mobile Network Operators/ Internet Service Providers (ISPs), Mobile Service Providers (8,9)
- Application Developers/ Content Providers (3,4,5,6,7)
- Customers

4.5 Trends

As the telecommunication industry moves into a convergence with the Internet, services are becoming increasingly important as a way of adding value to basic network connection and of winning and retaining customers in an increasingly competitive environment. For instance, network operators in several countries offer messaging services in order to provide the end users with a variety of real-time information. In the further stages where personalization and positioning features of the new technology have been established, the users will encounter instant messages related to their personal interest and their current positions.

Correspondingly, vendors who used to simply sell boxes are becoming increasingly concerned about after-sales service and support, and partnering with service providers to ensure their products find a market. Most of the equipment vendors have already been providing network management and outsourcing services.

All these trends mean that the division between product and service is becoming blurred, while product vendor and service provider are getting closer for collaboration.

Similar to the Internet, the mobile Internet will consist of a wide variety of services and applications. However, it should be noted that the mobile Internet will not be a simple copy or an extension of the Internet. Instead, applications for the mobile Internet will mainly capitalize on the fact that its users are mobile and continuously connected to the network. In time, today's Internet will probably become a subset of these new services.

Different from conventional Internet, MI is appealing because it gives the opportunity for "one-to-one" marketing by offering customer location information, constant connection to the Internet and maybe most importantly, personalized customer interaction. Personalisation is a further stage for this moment, since the providers will initially implement customisation. Customisation is not a new business model; nevertheless, it may offer an

important opportunity for the mobile Internet. It is taken for granted that in the future, the customers will demand more customized wireless Internet services that will give them more localized, personalized and real-time information. The reason behind the importance of customisation as a potential competitive advantage is that it simplifies the ordinary personal processes for the customers, which will provide both cost and time efficiency.

More important than the other key success factors, customisation and personalisation count for each of the players in the market. Network operators will have to offer different service portfolios for different types of subscribers, content providers, portals and ISPs have to process the personal information of the customers in an optimal way and equipment vendors should be able to launch terminals with appropriate screen formats according to the likes of different consumer groups.

Covering the essential concepts and trends about the industry, a general insight to the mobile Internet has so far been present, which will be the starting point for our further analysis of the market. In the following part, we will go deeper into the features that will affect the future of the market while specifying the key success factors for the players in the industry.

4.6 Drivers and Barriers of the Mobile Internet

4.6.1 Drivers

4.6.1.1. Mobility

More and more people in today's business life are spending time during business travels. Offices have begun to play a hub role where the information is gathered but processed by employers travelling around. Given these circumstances, the interaction between the office and the employees comes out as an important issue. The opportunity to access information from any point and at any time is obviously unquestionable.

This is the point where mobile Internet will show up before the conventional Internet. Internet together with its killer application e-commerce has brought a lot to our daily and professional lives. However, being connected to Internet via fixed line was a factor that hinders our mobility, which is crucial for the given reasons. The desire to take the technology with us to the places we are travelling has revealed some important results such as portable personal computers. However, accessing information via these portable devices cannot only be problematic but also it is away from being economical. Eventually, the technology will allow us to access Internet directly by using our mobile phones without using any other intermediary.

4.6.1.2. The maturity of the mobile phone market:

The mobile phone market particularly in Europe has been matured and both the equipment vendors and the network operators are looking for new ways of making money from existing subscribers.

For instance, Network operators are facing decreasing ARPU (Average Revenue Per User). Price erosion for mobile voice service is faster with third, fourth and sometimes fifth mobile operators having entered the market in many European countries. There is a common understanding throughout the industry, that within a 2 to 3 year period mobile tariffs will come down to the same level as fixed tariffs³². They also need to find out whether people really will use data on the move.

In addition to this factor, mobile phone manufacturers and vendors need a reason for people to replace their phones. Mobile Internet provides this reason because customers need phones with bigger screens. The drive from operators and service providers will mean that new services are provided quickly - and promoted strongly.

³² Durlacher Research (1999)

4.6.1.3. Convenience

As we have mentioned before, mobile Internet is relatively more convenient when it is compared to traditional access to the Internet. Not only the matter of portability but also the opportunity to acquire the most recent data about a person's situation makes mobile Internet more useful and practical.

Mobile Internet also shortens the procedures to utilize the new technologies. Customers need not form new relationships. For instance, in conventional Internet access, one should get in contact with two different actors, which are the phone company and the ISP, but in mobile Internet, many relationships will simply be extended with the current cellular device company.

An extensive and flexible billing system is built in already for cellular which is very valuable, as most countries do not have the same credit card penetration as the US and the UK. The e-cash or m-cash usage ratio could therefore be significantly better on mobile if instead of entering your name and several types of contact detail plus bank details (all of which could take a few minutes), you simply enter a four digit code which triggers all the relevant information to be sent automatically from your mobile SIM card.

4.6.1.4. High levels of mobile data usage

It is believed that mobile Internet and m-commerce will boom particularly in Europe because of since the consumers' tendency to use mobile data. As it is depicted in Figure 1, the penetration rate of the mobile phones is incomparably higher than the PC penetration. Given that the technology has provided the necessary arrangements to transfer all the Internet facilities on the mobile phone screens, there will surely be a huge shift for the mobile devices and services.

We also see that in contrast to the controversial security issues, e-commerce has lately achieved a relatively good progress in Europe (although it is still significantly behind U.S.A.), which is a good sign for the future of the m-

commerce since it is generally claimed that m-commerce could be a much more secure way of shopping online compared to e-commerce.

4.6.1.5 The effect of the equipment vendors

Mobile Internet comes out with new opportunities for the equipment vendors where they are able to develop their products and reach a higher customer base. Considering this opportunity, equipment vendors have pushed WAP Gateways and micro-browser enabled smart phones, which have important contributions in the development of mobile Internet.

4.6.1.7 Charged per transaction

Currently, one of the things that may sound challenging could be the pricing system of the mobile internet, since it will not be advantageous if the subscribers are charged per minute as we know it today from the GSM system. However, with the arrival of the GPRS technology, this billing system will be changed. Instant access to Internet is essential for this new system and in order to provide this facility, the Internet requires an “always on” mode.

Therefore, the subscriber will be charged for each transaction completed instead of the minutes connected to the Internet. On the other hand, Durlacher predicts that the new pricing model favoured by the operators will likely be (in the initial instance at least) a series of flat monthly rates for a certain amount of traffic. The operator needs then only to roughly control the traffic volume to ensure that it is not too far over the allotted volume.

This billing system can both be an advantage and a disadvantage for the subscriber. In the transaction-based billing system, the subscriber is charged per transaction whatever the transaction is. This could be a sale/purchase of \$10 or a \$1000 good. Whatever the value of the transaction is, the subscribers will be charged with the same fee. Again, NTT DoCoMo comes out with a more practical and rational solution where it charges its subscribers on a value-based billing system. This would relate to various price tags for certain services whether they are stock trades, e-mail or maps for example.

Transaction based billing system is a good solution for encouraging consumers to utilize mobile Internet, however as the subscribers begin to pay their transaction-based bills, the question of value will emerge in the minds of the consumers. Therefore, we believe that network operators should eradicate the transaction based billing system stage and employ directly a value based billing system.

4.6.1.8 Opportunities coming with UMTS³³)

With the release of the UMTS technology, mobile Internet will be redefined. UMTS will provide key benefits for the equipment vendors and the operators. There is a strong drive behind the UMTS technology since it introduces an architecture that will considerably reduce the operators' costs, including equipment, network deployment and maintenance.

UMTS also comes with opportunity to quickly provide value added services and create new service revenue streams as a result of its flexible structure in service creation especially in the area of Internet integration. Different from the former technologies, UMTS is an effective way to make integrated services such as multimedia available to mobile users.³⁴

4.6.1.9 Security

Online security for the mobile devices is being carefully designed to make sure that mobile phones and other wireless devices will not be as vulnerable to cyber vandals.

Security ranks nearly as high as ease and convenience for users of mobile phones. PCs were not designed with secure network use in mind, but mobile phones have security built in. Internet access appliances, Net-enabled cell phones and other personal communicators offer far more security than today's

³³ Universal Mobile Telecommunications System

³⁴ Web site of the "Third Generation Partnership Project", <http://www.eocenter.com/>

PCs. They can use tamper-resistant identity chips, protected by a password, and will eventually be suitable places for keeping digital money³⁵.

4.6.1.10 Cost of the Technology

A mobile phone is less expensive (EURO 150 vs. EURO 1000) than a PC. This argument carries even greater weight outside Europe and the US, as the cost of a PC is about 3 percent of the average GDP/capita in US where it is 20% in Latin America.³⁶

4.6.1.11 Real-time Information

Mobile offers a range of location based services such as “where is my nearest restaurant” which fixed cannot. A mobile phone is also with a person almost 24 hours a day, whereas a person is only exposed to a home PC or a work PC for more limited periods. The phone number can also double as the email address making it easy to remember.

4.6.1.12 Personalization

Customisation will be a natural outcome of the mobile Internet and all the actors in the industry will be keen on customizing their products and services but the competitive edge lies in the extent that they can personalize their offerings. The SIM card enables personalization that can be easily transferred even on upgrading a phone. The consumer should access the desired information in the least time possible. Therefore, the profile of the customers now gained an additional importance. Information such as the identity of the consumer, the place he/she lives or visits are crucial for these actors. In this sense, network operators will play one of the key roles since they already have such information about their subscribers.

³⁵ Ericsson corporate website, <http://www.ericsson.se/>

³⁶ Interviews, Ericsson Turkey, October 2000

4.6.2 Barriers

4.6.2.1 Current Technical Infrastructure

There are considerable quality and reliability issues facing mobile Internet whether for m-commerce or data, the services are not tried and tested. Even for prolonged voice calls, most users still prefer to use a fixed line because of its superior quality. Many transactions, which are begun on the fixed Internet, are not completed and slow speeds probably bear a high degree of responsibility for this. In which case, mobile could see even fewer transactions completed, as many will be time sensitive.

In addition, there is another factor on the terminal side: using the mobile phone more will mean more recharges of the battery, which is a major inconvenience unless battery lives are greatly extensive. Additionally, complicated B2B transactions are not suited to small screens and are unlikely to be made on the move.

4.6.2.2. Earlier Investments

Corporations and governments have already made considerably high levels of investments in fixed Internet. Some companies or individuals may regard wireless Internet as a candidate for substitution rather than a complement and therefore be reluctant to invest.

4.6.2.3. The advantage of fixed lines over mobile networks

Faster speeds will always allow fixed line operators to enable the newest services before mobile operators. However, this is only an advantage of the fixed line operators and in the case that they are not exploited, the mobile technology tends to retain its popularity over fixed line services.

4.6.2.4. Changing attitudes of the financial institutions

3G technologies, which will offer the base for the development of mobile Internet and its various applications, have driven considerable attention from different segments of the markets, particularly from the financial institutions during the days the technologies had been introduced. Financial institutions have been eager to throw money in these technologies, considering that it will be the second profit-generating source after GSM technology in telecom industry. However, the high costs of 3G mobile phone licenses warned the operators about the fact that in the mid-run, amortizing these investments is remarkably difficult. Therefore, banks' attitudes are also expected to change, since their shareholders tend to turn their backs to this once popular sector.

4.7 Dynamics of the Mobile Internet in the Developed Markets

In this section, we define the general norms for the mobile Internet in developed markets by trying to clarify how the market reached today's position and what are the major trends that will shape the industry in the future. We will also study the key success factors for different players in the market together with the substitute technologies that are likely to replace the GPRS and third generation mobile telecommunication technologies.

Therefore, we will spot the growth markets within the industry and use our perspective of the future market to help Ericsson Turkey map out how its area of expertise will fit into the overall scheme of telecom after a detailed analysis of company's business environment together with our outcomes of the industry analysis in the domestic market.

4.7.1 The situation of mobile Internet in the developed markets

We will basically cover the leading telecom and IT markets in Europe and give slightly less importance to the United States market, since the development in the market is much more remarkable in Europe than it is in US. It is not

questionable that US has always a leading role in the Internet revolution. However, in mobile Internet, which is the next big Internet development. US trail behind Europe. Therefore, we find it more suitable to study the West European market, Scandinavia in particular.

4.7.2 Background of the European mobile telecommunication market

Before getting deeper into the current market structure and the future trends, it will be appropriate to state how the market has reached this stage and what were the major advantages on the way to develop the mobile communication technologies.

During the early 1980s, European regulators mandated a uniform technological standard for digital mobile communication, which is named as GSM (Global System for Mobile Communication) and they have done the same for the next generation of phones, which will enable high-speed data transmission and a much wider range of multimedia services. It could be said that the essential reason behind the faster growth of the market compared to US is the existence of this single standard, which enables the users to communicate in different countries within Europe by using the same device. A single standard also created economies of scale for the players in the market such as equipment vendors, operators and service providers, which could sell their products to many more consumers. As a result of this situation, the mobile phone penetration rate has peaked in Europe. Almost 70 percent of the population owns a mobile phone in the Nordic countries and some 50 percent in Italy, compared with just over 30 percent in the United States³⁷.

4.7.3 Mobile Internet: a saver for the equipment vendors?

Mobile Internet could be reflected as a last-minute help for various players in the industry, since the market for mobile communication has tended to mature in several Western and North European countries. The technology that will

³⁷ The McKinsey Quarterly, 2000, Issue No.2, p. 43–45

transfer the virtual platform into our small devices opened a new era. The current situation of the mobile Internet is rather controversial. The critics that see no future in mobile Internet have made a fundamental mistake in evaluating this new technology within today's technological capacity framework. The major points they identify concentrate around the security issues, together with the insufficient number of WAP-enabled Internet websites. Cost of services provided is another matter of concern for these critics. Additionally, they could hardly accept the idea of cellular devices being used as credit cards, since the treasury and the banking industry in several countries will not be willing for a change in money and its presentation or handling.

We prefer to see the picture from another viewpoint. As we have mentioned, these critics have been raised within then pre-WAP, WAP or second-generation mobile communication technology framework. GPRS and later coming third generation technologies will resolve these highlighted problems to a large extent. The content providers, ISPs and portals have already begun to establish WAP enabled portals and WAP pages. Cost of the services provided could be rather costly when we consider that the user will try to access the Internet and perform several transactions via his/her mobile phone over the existing GSM technology. However, GPRS and 3G technologies offer a new billing system for the users, which is transaction-based rather than time-based. Namely, the subscribers will be charged for each transaction accomplished, different from today's charging per minute system and the Internet via mobile phone will have an "always on" system. The concerns about the attitude of the treasury and the banking industry in several countries can also be accepted as irrational, since the services such as credit cards and ATMs create notable costs for the financial institutions. We believe that, in contrast to these concerns, these institutions will support the launch of new technologies and contribute in the development of cellular devices to be used as mediums for payments.

As it is portrayed, there is an important growth potential for the market. However, the current situation is relatively complex as well as it is promising. It is still not clear which player will generate the largest share of the total revenues and which kind of applications will be the edge. It is predicted that m-commerce will be the first killer application to drive the market. M-commerce

revenue in Europe is expected to top \$ 45 billion by 2005 ³⁸ and other analysts predict worldwide transactions to generate more than \$ 100 billion by the same year³⁹.

4.7.4 General norms

As mobile Internet evolves in this initial phase, the players in the industry are aware of the fact that, it is still an undiscovered era and the only way to attain the most and face the least risk is to collaborate with the others from different segments of the market. Companies are coming together to form strategic partnerships in order to hedge the risks of this emerging market and enhance their competitiveness.

Ericsson and Nokia, as being the leading equipment vendors in Europe, needed to form such alliances. Ericsson preferred to collaborate with Microsoft for “end-to-end wireless Internet solutions” where Nokia participated in the Bluetooth interest Group that includes IBM, Ericsson, Intel and Toshiba, which will help the development of the Bluetooth technology with the contributions of the members⁴⁰.

The structure of the mobile Internet market in Europe could be figured as a pyramid in order to identify the position and importance of each player (Figure 4.5).

Hardware and technology vendors, the companies that, which supply the physical infrastructure for mobile networks and have developed enabling technologies such as WAP, are placed at the base of the pyramid, since they have primary importance as being the starting point for the market. The leading hardware suppliers include digital mobile phone manufacturers such as Ericsson, Nokia, and Motorola.

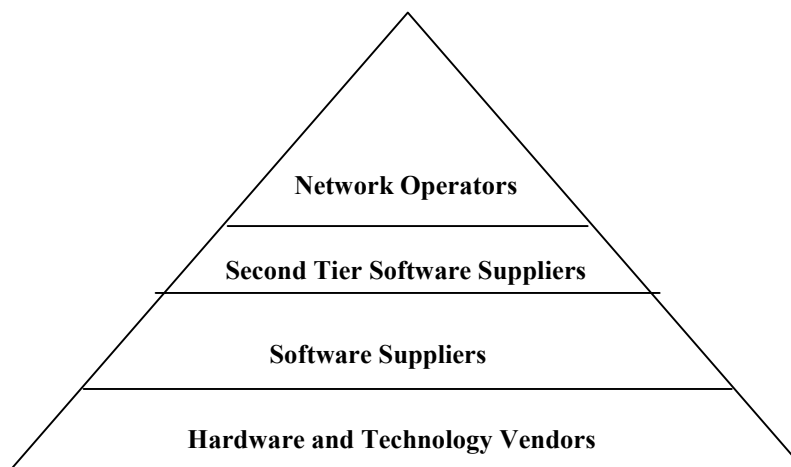
³⁸ Interviews – Ericsson Turkey, October 2000

³⁹ Wireless Review, 01 September 2000

⁴⁰ Nokia corporate website, <http://www.nokia.com/>

In the middle, we have the software suppliers developing wireless communication operating systems to run on the next generation of hand-held devices. In fact, most of the hardware providers have also branches that provide software solutions; therefore, in addition to Ericsson, Nokia and Motorola the companies such as Psion, Matsushita and Sony are also operating in the market under Symbian partnership.

Figure 4.5 The structure of the Europe Mobile Internet Market



Source: Depicted in regard to the information obtained from Financial Times, 14 June 2000

A second tier of software companies, including Palm Computing, AvantGo, Symbian, Microsoft and Phone.com, are the players, which offer applications for the end users, such as e-mail and web browsers. At the top of the pyramid, we have the mobile phone network operators like Vodafone, Telecom Italia, Deutsch Telekom and others, which are expected to deliver content and value-added services such as news, share quotes, timetable and weather data to mobile devices with WAP. This group is perhaps the least well defined, however it could include the network operators themselves, content providers such as Reuters and Bertelsmann and other companies from the retail and financial services sectors. At first, the most popular mobile Internet service is likely to be e-mail. SMS (short message service) messages have proved a big success in the Nordic nations and volumes are growing rapidly throughout Western Europe.

As we can see from this picture, the network operators and content providers are gathered under the same roof in this structure. Namely, network operators are also expected to play a role as content providers, which is rather different from our observations in Turkish market, where these two players function separately from each other. However, in case the content providers in Turkey fall short in performance to provide the necessary content, it will be the network operators that will act to rehabilitate the situation. At least, one of these players will shoulder this task so that they can generate revenues and network operators are the closest address for this task after the content providers and ISPs.

However, the question of which layer of the pyramid will be the profit centre is still waiting to be answered. As we can see for the moment, the first revenue generators will be the mobile network operators as a result of the extra airtime traffic on their networks. Besides, they have several more advantages, including enabling contact between the merchants on the Internet and the end consumers. Their customer knowledge database is another advantage, since we emphasized personalization as an important competitive advantage in the mobile Internet market.

4.8 M-Commerce⁴¹

M-commerce could be a real “killer application” in the development of mobile Internet. Actually, m-commerce is nothing more than extending e-commerce to mobile phones. It is important because it represents the extension of the Internet beyond the static terminal of the PC or even the TV set into a more dynamic ‘anytime, anyplace, anywhere’ context.

Like e-commerce, there is no precise definition that encompasses the scale or scope of the m-commerce market. However, basically it is the use of a terminal (telephone, personal digital assistant, PC device or custom terminal) and public mobile network to access information and conduct transactions that result in the

⁴¹ Mobile E-Commerce

transfer of value in exchange for information, services or goods. M-commerce is an important driver behind mobile Internet in Turkey. By 2004, there will be over 30 million mobile phone users and the customers will tend to adopt this new hype as a result of their earlier e-commerce experience.

The key reasons why various players are eager to enter this market are the new revenue opportunities and the potential to acquire new customers and retain the existing ones. Although a large number of applications will succeed in many markets, real confusion and uncertainty exists regarding what will be successful and who will make money from which m-commerce applications. Considering this complex situation of the m-commerce market, we should again point to the fact that it requires close partnerships between a series of players to make the applications work. No single organisation has all the skills and resources needed to deliver the end-to-end experience.

4.8.1 The scope for growing m-commerce

M-commerce will play best in those areas where it can emphasise the core virtue of mobile networks, which has to do with the convenience of the terminals used. Depending on the regional market, consumers are already using their phones for a broad range of mobile e-commerce services: banking, monitoring stocks and shares, ordering theatre, cinema & train tickets and gaming. We also find e-cash, where the consumers could use their cellular phones as credit cards as a suitable application for the large metropolitan areas in the world such as Istanbul where parking machines could be a serious problem from time to time. Another place for this application is thought to be the gates on the pay-highways, which are serious threats of traffic jam. However, these ideas are currently difficult to implement because of several reasons that will be raised in the Industry Analysis part.

We not only indicate collaboration as a strategy for the actors in the market but we also see it as the future situation of the market. Because of the mentioned interdependence, it is not difficult to estimate that network operators and content providers will cooperate. However, equipment vendors are another

important part of this picture that has been neglected by many authorities in mobile communication. In fact, equipment vendors outline the point where wireless Internet begins. Network operators will be able to provide services as long as their technological structure enables that content providers and ISPs are able to create revenues as long as customers access their portals. Technology provided by the equipment vendors is the key through this value chain. Therefore, we find equipment vendors as the most important part of wireless Internet.

The availability of the handsets, coupled with the introduction of faster access speeds and response times, will produce the necessary conditions to strengthen the take up of wireless Internet services. Many of the barriers to adoption, such as slow access speeds, will be eliminated.

4.9 Key Success Factors

Partnering is the major key to getting a piece of the transaction revenue from mobile Internet. Network operators will definitely want to retain all customer information in hand, since it is an important to achieve competitiveness. However, ISPs really know a lot about the consumers in terms of web traffic. It will be the equipment vendors who will provide the technology and modify the user interface in accordance with the customer information, like organizing the screen format according to different types of users. These will enable the users to access the desired information with the least number of transactions and minimize the airtime fees. Therefore, it is clear that each player has some materials that are complementary with the others.

Collaboration among different players in the market will also raise the quality of the service provided, since, the content provider's contribution will bring the rich content, network operator's contribution will ease the personalization process for the customer, and the equipment vendor's contribution will bring the new technical base for faster application speeds.

Customisation and personalization is another matter for concern. Mobile phones, being a personal identity, will become more personal as the services provided are customized. From the user interface to the real time data, the users will demand services that provide solutions for their instant situations. Being able to customize where they want to go first and fastest is a huge benefit for the users.

When the speed of the application comes into question, we believe that network operators have an additional task to provide this facility for the customers. The amount of bandwidth will be steadily enlarged with the coming technologies. However, operators should be cautious in the transfer of this enlarged bandwidth to different terminals. For instance, a voice call consumes only 8 KB to 13 KB per second, so it may not be economical to provide much higher bandwidths for the data users. Moreover, for some Internet services, a lower service quality can be provided. Non real-time services such as e-mail can technically be limited by the bandwidth that is left over from other users, although practically this may mean that those services will be unusable during busy calling hours. If this complex resource-rationing problem could be solved, the necessary base to provide faster services will be obtained.

4.10 The Business Models

As we see, the equipment vendors are generating their revenues mainly from the network branch of the business, since the handset is not profitable enough. Today, most of the equipment vendors still give importance to the production of the handsets because the network business will not develop unless the handset market expands, additionally vendors use the handsets as a branding and advertising medium, which they can use them in other business areas. Roughly, we can say that 70% of Ericsson's sales come from network business and the remaining 30% comes from different business segments including consumer products, which have around 20% share in total sales⁴².

⁴² Ericsson Interim Report, Nine months ended September 30, 2000 (October 20, 2000)

However, we think that equipment vendors might need to sacrifice some of the revenues generated from the network business through their partnerships with the operators in order to be successful in the mobile Internet market. We believe that network operators will achieve the most from the market during the development stages of the mobile Internet. Therefore, in order to increase their total revenues, equipment vendors, ISPs and content providers should learn to collaborate with the network operators. It is the network operators that have the necessary customer information in terms of the wireless Internet. By creating synergies between these actors, it will be possible to create value for the end customers with relatively lower costs. In order to do that, these actors could establish a common mobile portal, which will be supported by the resources of each partner. Moreover, as a result of value created, there will be additional customer demand for the handsets, which may cover the amount sacrificed from the network business revenues.

Mobile portals will generate 29% of their revenues from subscriptions and 70% from the transactions. On the other hand, the rate of the advertisement revenues will show up as 1%, taking NTT DoCoMo's i-mode as a reference, where advertising revenues have a share of 2% within the total revenues⁴³. This picture informs us about the fact that mobile portals will be able to expand their revenues as long as they can provide rich content and large variety of services. Therefore, it is essential to establish these portals through strategic alliances.

There is also another fact that whoever wants to achieve some share from the overall revenue will have to gain a better understanding of where the m-commerce market is now, how it may develop in the future, and what role their companies might play in it.

4.11 Future Trends and Expectations

Future of mobile Internet has been a rather controversial subject. Some authorities project pessimistic scenarios about the future of the emerging market after the failure of several providers in the market. The reason behind

⁴³ Interviews – Ericsson Turkey, October 2000

the manufacturers' shortage to reach the expected revenue levels from the Internet-accessible mobile phones is that the market has steered the demand in a wrong way that the customers expected more from the WAP application than it really could. The customers are currently far away from grasping the technological backbone of WAP and therefore its capacity. The main complaints concentrates on the point that WAP enabled devices are too slow in accessing the information and the customers because of this reason doubt the reliability of the real-time data⁴⁴.

On the other hand, according to some analysts, more people will be accessing the Internet from mobile phones than from office or home computers by 2003 and they believe that cellular devices will definitely perform better market records than any other medium to access the Internet. They also highlight some conditions related to mobile communication, which will drive this outcome.

Mobility is the first motive that is highlighted. Accessing, receiving and sending information anytime and anywhere is an important asset for today's dynamic business life.

Personal composition of cellular devices is another driving force behind this future scenario. Appearance aside, the services that will be obtained via cellular devices will also have personal profile. There will be a personal finance manager that integrates all the aspects of your finances, including bank records, monthly expenses, electronic purse expenditures and so on. This is not only stirring for the customers but also for different providers. Variety of start-ups, telecommunication companies, banks, stockbrokers, even supermarkets with personal finance sidelines will be eager to take part in such an application. The winners in this new application will probably be the companies that can create economies of scale as a result of this application. We will again indicate collaboration in order to provide a service for the customer that will eventually create scale economies. Alliances with financial institutions will have a crucial impact.

⁴⁴ Financial Times, 24 November 2000

Real-time information is also very important. However, this is one of the points where complaints about today's applications are concentrated. It is acceptable to doubt about the reliability of the real-time data that has been transmitted on a pre-WAP or WAP technology. Customers have expected from WAP technology more than it could serve. WAP is nothing more than an extension of GSM technology; therefore, the speed of data transfer might not be suitable for instant delivery of real-time information. However, this picture will radically change with the launch of GPRS, since the theoretical maximum speed for GPRS is 171.2 kilobits (kbps) per second. This is about three times as fast as the data transmission speeds possible over today's fixed telecommunications networks and ten times as fast as current Circuit Switched Data services on GSM networks⁴⁵.

Going further in this context, third generation mobile communication systems will be launched in many markets during the first quarter of 2001, which is coming with higher data transfer speeds and broader service areas. Bluetooth is an important technology to mention here because; it is not only coming with higher data delivery speeds but also with potential to revolutionize the mobile communication technology. It will enable users to connect a wide range of computing and telecommunications devices easily and simply, without the need to use any cables. It delivers opportunities for rapid improvised connections, and the possibility of automatic connections between devices. It will virtually eliminate the need to purchase additional or proprietary cables to connect individual devices, because Bluetooth wireless technology can be used for a variety of purposes, it will also potentially replace multiple cable connections via a single radio link. Bluetooth technology is essential for "machine-to-machine" communications. With this technology, you can send a picture just using a camera, to a friend's cellular device or start the washing machine while you are about to leave the office for home.

In the light of these facts, we believe that future for mobile Internet is still bright, because there is a significant development in the technology being used and mobile Internet enabled content is being expanded day by day. Therefore,

⁴⁵ Mobile Lifestreams' Research (2000),

we should not use current technologies and the capabilities as a base for our conclusions when evaluating this new market. Additionally, it is also very important to see mobile Internet as a complementary technology for the conventional Internet. We do not believe that access to Internet via cellular devices will totally replace the PC usage or other conventional mediums to access the Internet. Mobile Internet is convenient for several reasons that are mentioned above, but most people will prefer to surf the Internet via their PCs until a new technology, like fourth or probably the fifth generation mobile communication is launched

Summary

As we have presented the different development phases together with the general trends of the industry, we will be able to understand the possible occasions that will shape the market in the short run. Additionally, the chapter has addressed some crucial points that bear the opportunity to generate revenues for different players in the industry. In the next chapter, we will handle the problem for Turkish market by approaching the case from a domestic view.

5 INDUSTRY ANALYSIS

In this chapter, we will begin describing the situation of the market in terms of its technical, political and social dynamics. When a new technology is launched in a certain market, the maturity stages are highly dependent on these dynamics. This part is mainly prepared to evaluate the significance of these dynamics in Turkish market.

5.1 Macro Environment Analysis

5.1.1 Turkey⁴⁶ at a glance

Turkey's strategic location between Europe and Asia, bordering the Black Sea and the Mediterranean, and its size-with a vibrant young population of over 64 million people-mark it as an emerging dynamic economy. In 1999, per capita GNP was US\$ 2,900⁴⁷.

5.1.2 The Economy

Since the early 1980s, Turkey has made great strides to liberalize and integrate its economy with the global economy. Turkey entered a customs union with the European Union (EU) in 1996 and is playing a pivotal role in developing economic cooperation with the economies of Eastern Europe and Central Asia. These policies have helped create an entrepreneurial and resilient private sector.

Turkey had long been identified as a country that defied economic rules. It managed to maintain a growth rate of around 4-5 percent through the 1990s despite high inflation. With the economy growing, it was difficult to convince

⁴⁶ This section is derived mainly from World Bank Data, www.worldbank.org

⁴⁷ Preliminary World Bank estimates calculated using the World Bank Atlas method.

the politicians, or even much of the public, that Turkey needed strong measures. Even its high inflation was tolerated. However, this challenge to economic orthodoxy had to end eventually. 1999 was a difficult year for Turkey. The economy was in deep recession; output declined by over 6 percent and inflation was around 70 percent. Domestic interest rates over 100 percent were the primary cause of the downturn. On top of this, two earthquakes in 1999 shattered thousands of people's lives and had significant economic costs.

Three events changed dramatically Turkey's economic and social agenda. First, the coalition government's determination to carry out badly needed economic reforms; second, the devastating earthquakes in Marmara and Duzce that psychologically shook the entire country and ironically helped Turkey move closer together internally, mend relations with neighbours like Greece and move closer to Europe; and third, Turkey's candidacy to the EU that ensures the country's commitment to push beyond its economic program to include reform of the public administration, judicial sector, and other broader governance issues.

Turkey's current economic program rests on three key elements: strong, up-front fiscal adjustment; major second generation structural reforms in agriculture, pensions, banking, energy, *and telecommunications*; and a crawling peg for the exchange rate to break inflationary expectations. The program targets a drop in annual inflation to 25 percent by the end of 2000 and to under 10 percent by the end of 2002. It also aims for a growth rate of over 5 percent per annum in 2000 and beyond. The inflation rate by the end of 2000 is likely to be around 40 percent, which is a step back for the stabilisation program. The ambitious growth rates are not likely to be realized at least for 2001. Expectations are that the economy will experience a big slump because of the catastrophic financial crisis of late November that has crushed the Turkish banking sector and the capital markets.

Turkey's external accounts are showing worrisome trends. An import boom and weak export response has led to widening current account deficits of up to US\$4.5 billion in the first six months of 2000. Efforts will be needed to contain the deficit in the second half of the year. Good progress has also been made in

reforming the public pay-as-you-go pension system, enacting legislation to modernize the legal and regulatory framework for bank supervision, and introducing international arbitration for concession contracts.

Agricultural reform is beginning to gain momentum. The Ministry of Agriculture supports the shift from price supports to direct income support. A key test was passed in late May when the support price for wheat was announced at no more than 35 percent above world prices, a decline of around 14 percent in dollars terms despite the 7 percent increase in the international price of wheat.

Regarding the energy sector, the government has decided to introduce regulated markets for electricity and gas to address the shortcomings of the current centralized model, which has led to high cost power supplies by private producers under government guaranteed take-or-pay contracts.

As a major emerging market with an open trade regime and large macroeconomic imbalances, Turkey is *highly vulnerable to external shocks*. Exports and imports together equal some 50 percent of GNP. About 70 percent of Turkey's imports and 50 percent of its exports are with countries of the Organization for Economic Cooperation and Development (OECD). As these countries are facing an upward business cycle, Turkey will benefit from stronger foreign demand in the near term.

At the same time, there are several countervailing factors affecting the current account balance. First, the surge in oil prices has added up to US\$2 billion to the annual import bill. Second, the real appreciation of the Lira will boost imports and dampen the recovery of exports. The high level and short maturity of external debt represents another source of risk given the open capital account. Turkey's external debt stock of US\$111.2 billion stands at some 59 percent of GNP, of which about US\$29.3 billion is short term.

	1979	1989	1998	1999	
GDP (US\$ billions)	91.7	107.1	201.2	185.7	
Total exports (FOB)	2,261	11,780	31,221	29,326	
Total imports (CIF)	5,069	15,792	45,921	40,693	
Government finance (% of GDP) Overall surplus/deficit	-	-5.2	-13.4	-23.4	
Total debt/GDP	17.4	38.8	48.2	54.8	
<i>Consumer prices</i> (% Change)	-	63.0	83.7	63.5	
Average Annual Growth					
	1979-89	1989-99	1998	1999	1999-03
GDP	5.0	4.0	3.1	-5.1	5.5
GNP per capita	2.4	2.5	2.3	-7.8	4.1
Exports of goods and services	-	11.0	12.0	-7.0	5.9
Source: World Bank data, Turkey at a glance, http://www.worldbank.org/					

Sustained capital inflows are critical to success of the reform program. These funds are needed to finance the projected widening of the current account deficit as the economy recovers and to accommodate the shift to a more balanced mix of internal and external borrowing for the budget, compared with the nearly exclusive reliance on domestic markets in recent years.

Turkey's admission to the list of candidate countries for EU membership on December 10, 1999, anchors the country in Europe. It provides the government with an additional rationale to promote economic policy reforms. The prospect (albeit long-term) of membership and better access to EU markets is an additional attraction for investors and has contributed to the improvement in Turkey's risk profile in financial markets.

Separately, Turkey is recognized by its high rate of economic vulnerability and *large income inequalities*. Absolute poverty is low, with only 2.5 percent of the population below the international one-dollar-a-day standard line, and 7.3 percent of the population below the line defined by a local minimum food basket. However, 36 percent of the population is economically vulnerable-unable to purchase the basic needs basket, including non-food items⁴⁸.

5.1.2.1 Income inequality

A World Bank study demonstrates the negative effects on vulnerability and poverty of uneven growth, low rates of investment in employment-creating activities, high and variable inflation, low education coverage, and poorly targeted social assistance and agricultural subsidies. A significant share of total inequality in Turkey is explained by differences in endowments, geography, and opportunities in the labour market. Education and employment status together explain almost half of the inequality, while rural/urban differences and regional factors explain 10 percent and 11 percent respectively. As to regional factors, it is important to note that regional differences are growing, but the provinces at the extremes of the distribution have been by and large the same ones over the last twenty years, as richer provinces (mainly those in the Marmara area or around Mediterranean and Aegean port cities) are converging towards each other, but provinces that were poor in 1975 were further behind in 1995.

While Turkey is the world's 17th most industrialized nation, it ranks 86th out of 180 countries as measured in the 1999 United Nations Development Program's human development indicators, far behind most middle income countries (notably, behind Argentina, Chile, Colombia, and Mexico). Some of the contributing factors to this low ranking are the 20 percent adult illiteracy rate and poor health outcomes. In particular, infant and adult mortality rates and life expectancy are all worse than middle income economies in Latin America, Asia, and Eastern Europe, which have comparable or higher levels of per capita income.

⁴⁸ World Bank Report-Turkey, January 2000

To summarize the above, one can conclude that Turkey is characterized by large income inequalities and an unstable macro-economic environment. The economic forecasts for the coming year are (1) the economy will shrink, though the inflation rate may fall further, (2) the privatisation will gain pace and as a consequence partial deregulation may be expected in the telecommunications and the energy sectors, and (3) the political instability and a collapse of the coalition government and the stabilisation program is rather likely.

5.1.3 Technological infrastructure

The developments in telecom industry have basically begun with the significant attempts performed during early 1980s. A considerably small telecommunication density had been increased to a level of 25% in those days, namely 25% of the population had access to the telecommunication services. Following this progress, the industry has been the driving force behind many other industries in the market. Turkey succeeded in establishing the most contemporary technology on its network, but it had been a long phase before the ISDN ⁴⁹ services are brought to the market.

Turkey's mobile communication infrastructure is technologically based on the same standards with the developed markets and the determinant for this judgment is the level of digital coverage on the network. Keeping several switching units as exceptions, Turkey has almost 100% digital coverage. However, the market still rages against a capacity shortage. The administration of telecom infrastructure in Turkey is delegated to the state owned monopoly via Turk Telekom. It is a critical issue for the industry to have Turk Telekom as an enterprise that can independently make decisions. Until this year, the budget of Turk Telekom has been determined within the margins of the national budget. With the new Telecom regulations, Turk Telekom will be able to make decisions free of several external impacts, which will help to overcome problems to increase the capacity of the infrastructure.

⁴⁹ ISDN service is used to connect telephones, computers, and fax machines. The technology provides fast connections for voice, data, fax, and even video all through a single line. (Source: <http://www.isdnzone.com>)

5.1.4 Demographic structure

According to the most recent figures, the total population of the country is over 65 million and the annual growth rate for the population is around 1.5%. Nearly, 75% of the population live in the cities and 56% have a secondary school level education. The point to be highlighted about the general profile of the population is that the age segment of 16-35 accounts for 60% of the population, which has an important impact on the consumption habits in the market.

The reflected GNP per capita for Turkey is \$ 2,900, however considering the non-registered economic activities; this rate is thought to be at a higher level. Beside the nation's high rate of economic vulnerability, the large income inequality is an important issue, which warns us about the existence of a market segment living on GNP per capita levels that are comparable to the developed market levels. It is also important to realize that Turkey is a country undergoing radical changes, and has been for the last century. Urbanization and migration from the east to the more developed west are changing the character of the towns and the rural areas and bringing a mass of social problems with them. Regional figures for the country differ extensively from each other and the difference is growing, but the provinces at the extremes of the distribution have been the same ones over the last twenty years. As richer provinces (mainly those in the Marmara area or around Mediterranean and Aegean port cities) are converging towards each other, but provinces that were poor in 1975 were further behind in 1995.

99% of Turks are Muslim. Turkey is however, a militantly secular country and life is far removed from that under fundamentalist regimes. This is a key factor to achieve any understanding of the way that politics and society work in the country. At times, you will forget that you are in an Islamic country and only be reminded next time you hear the call to prayer, broadcasted through a PA system from the nearest mosque. The mix of cultural influences and traditions in Turkey is a rather unique situation when it is compared to the homogeneous structure of the West European societies.

5.1.5 Government

Government is probably the most important player in the development of mobile communication technologies. It has the essential role in the economy to develop and implement the emerging technologies.

Table 5.2 Basic institutional facts about Turkey	
<ul style="list-style-type: none">• Official name	Republic of Turkey
<ul style="list-style-type: none">• Form of state	Parliamentary republic
<ul style="list-style-type: none">• National legislature	Unicameral Meclis (parliament) of 550 members directly elected for a five-year term
<ul style="list-style-type: none">• Legal system	Based on European models and constitution of 1982
<ul style="list-style-type: none">• Electoral system	Universal direct suffrage over age 18. Only parties gaining more than 10 per cent of the national vote are eligible for seats in the parliament
<ul style="list-style-type: none">• National elections	April 18 1999; next election due by April 2004
<ul style="list-style-type: none">• Head of state	President, elected by an absolute majority of the Meclis for a seven-year term. Current president: Ahmet Necdet Sezer, elected in May 2000
<ul style="list-style-type: none">• National government	On June 9 1999 parliament voted in a coalition government led by Bulent Ecevit, comprising the Democratic Left Party, Nationalist Action Party and Motherland Party
<ul style="list-style-type: none">• Prime minister	Bulent Ecevit (DSP)

Source: Own

In general, governments have been driving forces behind the technological developments in the developed markets. However, the situation of the government in the Turkish market is rather complex. In contrast to the developed markets, the government in Turkey is rather slow in coping with the latest technologies and generally follows the private enterprises in the new technological developments.

State monopoly in the telecommunications industry is the essential barrier to the market development. The clumsy bureaucratic structure of the government institutions disables the possibility for quick decision making and implementation processes. State monopoly hinders the formation of a competitive market, which will be in favour of the many players in the industry. However, as the liberalization following the privatisation of Turk Telekom came into question, the attitude of the legal authorities has also changed. Legislation is being modified in order to bring the technology into daily transactions, which will ease the burden of the official authorities. However, this process is rather slow to catch up with the requirements emerging as a result of the technological development. At present, official entities do not reveal any attempt to cope with the developments in the mobile Internet. In fact, some basic transactions have recently been made, as Devlet Malzeme Ofisi (Equipment Office for State Enterprises) has established a website for online procurement several months ago. However, we might still wait for a while for the development of mobile Internet applications in the official transactions.

5.1.5.1 The Significance of Turk Telekom

Turk Telecom is the dominant telecommunications carrier for the fixed lines in Turkey. It provides a variety of telecommunications services from basic voice telephony to several other value-added services, like analogue mobile telephony, CATV, Internet, satellite services, data, paging, etc. With approximately 17 million access lines in service (corresponding to 27% fixed line penetration and 83% digitalisation), it is ranked as the 11th largest operator in the world⁵⁰.

More than a decade of heavy investment has modernized and expanded Turk Telekom's infrastructure. Digitalisation stands at 82% of exchanges and 95% of transmission, which compares favourably with the levels in some economically more developed countries. Being in the privatisation phase, it

⁵⁰ The Official Website of Turk Telekom A.S., <http://www.telekom.gov.tr/>

stands as an attractive investment opportunity with high growth potential due to several reasons.

ISPs must agree to use the Internet circuit provided by TT. Turnet or TNet operates TT's Internet backbones. Turnet has 16Mbps of international capacity and 2Mbps of domestic capacity, which are operated from connection points in Istanbul, Ankara and Izmir.

However, being fully controlled by the state disables the enterprise to shorten the decision-making processes and harms the market structure. Deregulation of Turk Telekom in 2003, will attract new entrants to the market and they should bring with them newer applications and business models, paving the way for expansion of content and commerce on the mobile Internet and Internet platform.

5.2 The Industry Environment

5.2.1 General

In this part of the chapter, we will describe the industry environment of Turkish telecom market, which will be a base for our further study of the trends, drivers and barriers, key players in the development of MI in Turkey. Completing this part, the reader will get the necessary understanding for the market and will be able to compare the domestic market's pros and cons against the European markets.

The competition in the terminal market is getting tougher as more vendors try to get a share from the market. As the market has come a long way since its early days, the gaps between the shares of each vendor have considerably diminished. Looking at the network equipment providers, we still can see that the market is dominated by several players, which are led by Ericsson. The legal framework and technical infrastructure should be improved before the market constructs a competitive environment similar to the terminal market.

We expect similar competition on the operator side of the market in the short-run, particularly after the liberalization of telecom monopoly. Only two operators have shared Turkish mobile telecommunication market since 1994. Because of a weak competitive environment, both operators did not need to differentiate themselves either in services or in the prices offered. However, the situation will definitely change in the favour of a developing market environment after Is-Tim consortium, the third mobile operator, launches its operations. It is expected that the new operator will not only differentiate itself with challenging prices but also with the quality of the service that will be provided. The competitive edge behind the new operator is that their switching unit and network will be supported by the latest technology, which will enable them to lower the operating costs. Doing this, Is-Tim is going to offer a better service with lower tariffs. This will also affect the market strategy of the fourth operator as well as the existing ones. The second GSM 1800 license is given to Turk Telekom as the fourth mobile operator and Turk Telekom will delegate the operation to another corporate body, which is expected to be established by the people from Turk Telekom or people who have close relations with the carrier. In this sense, the fourth operator will also come with its own competitive advantages. Being in such close contact with Turk Telekom, the operator will have control on both fixed line and the mobile network, which is a good opportunity to create a synergy in the services that will be provided for the corporate and individual customers.

As the two new operators enter the market, Turkcell and Telsim will need to revise their current strategies and come out with new offerings that will increase the value for customer. Creating value for the customer will be essential because, after a certain point, price will not be a key factor to gain market share. When the prices are lowered to the possible minimum levels, and then subscriber loyalty will come into question where the services will be optimised for the consumer satisfaction.

5.2.2 Trends

It is believed that the development of Mobile Internet in Turkish market will be much faster than we have witnessed in the wireline Internet. Mobile Internet will address larger masses of users in this market.

There are several reasons behind this estimation. First, mobile telephone penetration rate is much higher than the penetration rate of the PCs or other conventional mediums for the Internet access. In addition to this, PC usage could be seriously problematic for the elder people and the people without any sufficient educational background, but mobile phones are very different compared to PCs. They are highly practical and convenient to use. Another reason that was illustrated by many interviewees is that Turkish people tend to spend their time outdoors rather than indoors, in front of their PCs. The climate of the country is the reason behind this attitude, where people can find the sunshine several times a week regardless of the season. This habit promote the use of the mobile handsets more than the use of the PCs.

Looking at different actors in the Turkish telecom market, we see Ericsson and Motorola as two important vendors that have started to establish the infrastructure necessary for mobile Internet. Siemens could also contribute through the newly emerging mobile operators in the market, but majority of the terminal providers still prefer to market their devices. On the operator side, Turkcell and Telsim are going alongside in updating their networks to GPRS and preparing for the 3G technologies. ISPs and content providers managed to cope with the WAP technology, but content variety still needs be extended. The market seems to recognize the potential of this new technology. Therefore, we believe that intensity of Turkish content, which is one of the current barriers against MI development, will be expanded and varied by the content providers.

5.2.3 Substitute technologies for mobile Internet

While the potential of mobile Internet is huge, simply in terms of its offerings and the potential user base, the importance of substitute technologies should not be underestimated. Real, well-established alternatives exist for just about

all the applications we can predict for mobile Internet and for the moment, interest in mobile e-commerce does not necessarily equate to revenues or revenue-generating opportunities. There is still a possibility for the market to be similar to the ISP market, where each player is eager to stand there but not any of them revealing real profits.

We have already seen examples of how the mobile Internet is being successfully implemented. In February 1999, the Japanese mobile operator, DoCoMo, introduced I-mode. By October 2000, I-mode boasted 14 million subscribers, and the service continues to grow at an astonishing rate of around 1 million new subscribers per month. I-mode is expected to have around 20 million subscribers by the end of the year.

Today, I-mode supports some 230 applications and services, such as banking, ticket-reservation, travel-reservation services and a variety of entertainment services. Simplicity, supporting a subset of HTTP (the hypertext transfer protocol), economical fees and successful strategy in determining the target market, which has given an additional emphasis for the travelling business man and the Internet youth are the major key factors behind the sensation of this new technology⁵¹.

The Mobitex network in Nordic Europe and North America follows I-mode as another example of successful implementation of the mobile Internet. In fact, the roots of this technology are grounded further before I-mode. The Mobitex network was originally developed in Sweden by Swedish Telecom Radio and put into trial operation in 1983. The development process of this technology is rather similar to the Internet. The technology has initially served as a network to be used within a specific field service, such as a company or a production plant. However, as the focus of the network shifted to messaging and two-way paging, the market began to expand. Palm Computing, Inc., a subsidiary of the 3Com Corporation, played a key role when it introduced the Palm VII. The Palm VII is a Palm computer with a Mobitex radio that supports Web clipping, a simple but effective way of utilizing the narrowband mobile Internet.

⁵¹ NTT DoCoMo Official Website - <http://www.nttdocomo.com/top.shtml>

The new success of Mobitex can be attributed to more mature products but also to a maturing market that understands and is ready to use the technology⁵². From these two examples, we see that it is possible to create a substantial market using simple technology and low bandwidth. We also see that success comes from being user-oriented and taking a new marketing approach.

Some authorities also discuss the possibility of placing mobile communication devices into portable computers, which is expected to provide a better user interface. However, it is obvious that this method is currently out of practice, since portable computers with telecom, devices will be more costly than an Internet accessible cellular device. Apart from that, there are many different phone standards in the market. There is no standard that is universally accepted.

5.2.4 Complementary technologies for mobile Internet

5.2.4.1 Internet in Turkey

Considering the figures related to the conventional Internet penetration, the situation is not bright compared to the European markets. However, there has been a remarkable progress in the last few years where Turkey's Internet penetration rate has tripled since 1997. The number of Internet users in Turkey is currently 1.2 million⁵³ and is expected to be over ten million by the year 2004, generating over \$ 4.5bn in revenues. However, 3% Internet penetration rate is still unsatisfactory compared to the average 21% in the Western Europe⁵⁴.

Turkish people believe that the Internet is a medium that eases up many transactions in the daily life. However, they also believe that with the expansion of the Internet usage, forgery will also rise. In addition, 70% of the population believe that education via Internet will increase.⁵⁵

⁵² Ericsson Mobile Data Magazine, 2000, Issue No: 1

⁵³ Melih Özdemir – Super Online, 09 November 2000

⁵⁴ Interviews – Ericsson Turkey, October 2000

⁵⁵ Finansal Forum newspaper, 1 October 2000

It is important to mention the drivers and barriers for the Internet development. This comparison will enable us to see whether there is a chance for the conventional Internet to develop in the market.

➤ **Main Drivers behind the Internet Development**

➤ *Growing PC penetration rate*

As we have already mentioned, though the statistical figures are not competitive with the European market, the trends in recent years warn us about the existence of a promising market. In our opinion, this is not an irrationally optimistic approach since the figures reveal that there had been 200,000 PCs dispatched, while in 1999 this amount has reached to levels that exceeded 650,000.

➤ *A huge prospective customer base*

GNP per capita is estimated to be \$ 2,900, which is low, but Turkey's grey economy means the real figure may be twice this. Hence, GDP per capita may not be the constraint on Internet usage. Unequal wealth distribution is also a factor that should support strong growth in Internet usage in the initial years. It is estimated that the top 20% of the population receive on average 55% of total Turkish income.

➤ *Ease of access*

All Turkey's leading ISPs use a digital backbone, and are investing in more dial-up lines, ports, and points of presence. They have similar modem per subscriber ratios and access speeds. They also all have a customer support line, most of which serve 24 hours a day and 7 days a week. However, it is a necessity to modify the current infrastructure and the switching units to efficiently serve for the fast Internet connection. Considering the contemporary infrastructure of the country, this is not believed to be a complicated transaction. It will be possible with the help of some additional hardware and upgrading the software. This will also increase the market value of Turk Telekom. Turk Telekom is currently using TTNNet for the Internet connection, but this cannot respond to the required levels of Internet connection in the near future.

➤ *Entertainment*

Looking at the consumer profile of the Turkish market, we notice that the majority is concentrated in the age group of between 16 and 35. Applications on the Internet that contain entertainment facilities are potential killer applications. Services such as online games, chat rooms and e-mail / messaging are upheld by this segment of the market. Applications that are related to investment and data gathering will follow the entertainment. The main motive behind the Internet usage in Turkey is not the professional tasks. People are more into applications that have relaxation effects. When it comes to the most common products and services that are offered on the Internet, we can at the first phase mention audiocassettes, CDs, computer peripherals, travelling tickets, gifts, hotel reservations, toys, sports equipments and cosmetics products. Besides, the most visited websites in Turkey are the ones that are related to chatting. In particular, these websites are haunted by the youth within the age group of 15-24. Consumers over the age of 25 are more interested in the websites that are related to their profession. Online shops attract women rather than the men⁵⁶.

➤ **Barriers to the development of the Internet**

➤ *Content*

An insufficient level of Turkish content is the major problem that might hinder the Internet usage growth. The majority of the users are not capable enough to understand the English content. Access has been the basic concern during the initial stages after Internet had been launched in Turkey. Consumers were not willing to pay for the ISP packages, which were offered from prices around \$ 30. Today most of the ISPs are providing their services at much lower prices. Nevertheless, this new pricing system by itself could not be an initiator for the market growth. People are still reluctant to get connected to a cyber platform where the

⁵⁶ Finansal Forum, 1 November 2000

majority of the information is in English and the number of websites providing Turkish content is considerably poor.

➤ *The cost of the technology*

The price for a mainstream PC begins from \$1,000, which is still rather costly for the average consumer. Although there have been campaigns with stimulating opportunities, PC retains its position as being a luxury good.

5.2.4.2 Mobile communication market in Turkey

The development of the mobile communication in Turkey began in 1994, with the launch of the first two mobile operators of the country, Turkcell and Telsim. The growth pace of the market has decreased since 1998 when the two operators had achieved their commercial autonomy. However, the general opinion is in a way that Is Bankasi- Telecom Italia (Is-Tim) consortium, which won the GSM 1800 auction in April this year will revive the market. In addition to this, there will be a fourth operator to be launched in the following months, which is expected to promote Turkish market to the 9th rank among the whole telecommunication markets in the world.

With regard to both the number of subscribers and the mobile phone penetration rates, Turkey has an advantageous position compared to the other developing markets. Access to wireless Internet is more common than it is in US. It is expected that Turkey will have an important position in the world markets following the developments coming with the third generation mobile communication technologies⁵⁷.

According to research conducted by The Strategis Group, Turkey has been portrayed among the ten largest telecom markets in 2007. According to this projection, Turkey will hold 17% of the world telecom market together with United Kingdom, France, Brazil and South Korea in 2007. It is also estimated

⁵⁷ Strategis Group (2000)

in the same research that the mobile phone penetration rate will reach 62% in 2007, where it was 17% in 1999.

Considering the quality of the telecommunication infrastructure, Turkey is rather competitive with the European standards. However, the dominance of the state monopoly creates barriers in the decision making process and obstructs the services from being launched on time and diminishes the value for Turk Telekom, the state owned carrier. Because of this problematic situation, Turkish mobile telecommunication market faces a capacity problem.

The control of the infrastructure has been delegated to Turk Telecom as a state monopoly. Until this year, all the investment decisions of the entity have been considered within the framework of the general budget of the Turkish Republic. However, with the new telecom law, Turk Telekom will be able to make its own decisions, which will help to ease the capacity problems.

The general belief is that the privatisation of Turk Telecom will not solve the major problems unless it is handled together with liberalization. Same conditions that apply to the domestic investors should be provided for the foreign investors as well. There are certain groups in the managerial levels of the state monopoly who benefit from the current situation of the company. The pace of the development will be much improved after Turk Telekom is reorganized and the market gains a completely liberal structure.

GSM and ISP markets are partially liberalized, because GSM should obtain the services from Turk Telekom. The general belief is that the services will be totally liberalized this year or the following year, since the Telecom Head Council has such a target to fulfil. All these developments are important drivers for the mobile telecommunication market.

With the liberalization of telecom services, we will witness a remarkable level of demand and dynamism. First, there is a large consumer base enforcing the attractiveness of the market. Secondly, the legal regulations are becoming less supportive for the monopolistic market environment and as a third factor we can address the quality and capacity of the supply structure. Turkey is

prominently in a lucky situation in terms of technological infrastructure of the telecommunication network. The market has absolutely the most developed infrastructure in its region. Active network operators and the educated labour supply are important assets for the development of the industry.

➤ **Drivers of Mobile Communications Growth**

➤ *Promotional activities*

The increase in the number of subscribers has also stemmed from the successful promotional campaigns performed by a variety of corporations operating in the media sector and this will always play an important role by being an effective driver for creating demand. One can claim that the main reason behind the increase in the subscriber numbers, during the last year, is the promotional campaigns of various newspapers. The market has broken a record by generating 1,300,000 subscribers just during July. The recent picture from the market reveals that these kinds of promotional campaigns has been matured and immediately new campaigns emerge in a different set-up, like lotteries performed by the manufacturers of a range of durable consumer goods.

➤ *Decrease in the device prices*

The prices of the wireless telecommunication equipments have gone down one third as the technology develops. This has had a significant impact on the increase in the number of mobile telephone users. The average price for the new model cellular phones had been \$ 3,000 in 1994, where \$ 1,000 is the maximum price for the new models that are being launched nowadays and the new models are being sold for half the prices several months after they have been launched. For instance, Ericsson R320s had been offered with a price of 400 million TL (app. \$ 550) when it was launched last year, but the price went down to \$ 300 as a result of an increase in production levels. There is also another factor behind this decrease in the prices. Network operators, Telsim in particular, together with the distributors subsidize the import of the devices and help to launch the product with lower prices than it is

supposed to be according to the other markets. Currently, 80% of the market consists of entry-level products (low end), which have price of around 100-150 DM (less than \$ 100)⁵⁸.

➤ *SMS (Short Messaging Services)*

SMS is favoured especially among the youth. The reason behind the preference of data usage instead of voice feature of the cellular devices is that SMS has a privacy attribute at first hand, secondly the service bears relatively low costs compared to the voice services. Therefore, it is used by the younger customers with lower income figures, which occupy a considerable share in the consumer market.

➤ **Barriers to Mobile Communications Growth**

➤ *State monopoly*

Bureaucratic transactions within Turk Telekom can be defined as the main barrier for the development. Long and slowly progressing decision-making procedures prevents the investments from being launched or completed on time. When it comes to the telecommunication industry, the cost of this clumsy organizational structure outstandingly increases, where the technology develops rapidly. The privatisation and liberalization of Turk Telekom is a quite controversial issue in Turkey.

Different from other state owned companies in various markets, Turk Telekom has a strategic position. Some authorities associate the situation of the enterprise directly to the national security, since the control of the information flow within a country is a rather decisive issue. The delegation of this authority to the private actors or even to the foreign enterprises is largely criticized. The most significant reaction is coming from the military bodies. No army member has made a declaration concerning this issue, however the attitude of the military on the privatisation of the state owned carrier is obvious and considering the

⁵⁸ Interview – Ali Kesan, October 2000

impact of the military on the governmental issues, we can say that the delay in the privatisation program largely stems from this impact. Secondly, there are also certain interest groups within Turk Telekom and inside the government that do not support the privatisation program, which will unquestionably be against their benefits. These interest groups have also serious lobbying activities within the government. Therefore, the question of the amount of shares in Turk Telekom that will be sold to private investors has become a chaotic situation.

Developed markets of tomorrow's world are in a process of establishing their infrastructures on information technologies, communication, text, picture, voice, video processing and knowledge transfer. It is very important to determine the future technologies that will be used in a most accurate way. Countries that could go beyond the industrialization process will be able to dominate the world markets in the near future. In the future, the societies will establish their infrastructure on the technologies, which are referred to as information technologies.

Mobile communication together with the data processing industry will shape a new type of living and control the whole world markets as a result of a massive infrastructure. In the case that Turkey gives priority to these information technologies and restructures the economy accordingly, it has a chance to catch up with the developed markets. Otherwise the country will not be able to cope with the challenges of the globalisation process and its competitiveness, already hampered by adverse currency effects will be further worsened. Thus, Turkey should base its economy on these promising, high value added and high-growth industries.

Turkey has shown slow progress in the Internet field. However, GSM users in the market, which were 4 million in 1994 increased to 6 million in 1999 and reached 11 million in the beginning of the last quarter of 2000⁵⁹. On the other hand, although the penetration rate for the PCs is increasing, it is still low compared to the mobile phone penetration. The estimations for the year 2001

⁵⁹ "İletişim Teknolojisinin Önemi" – Finansal Forum, 1 November 2000

are that the mobile phone penetration rate will reach 26% where the rate for the PCs is just 5.4%. These figures are important to have an optimistic idea about the future of mobile Internet in Turkish mobile communication market.

In fact, currently there is not a serious technological gap between the Turkish mobile Internet market and the developed markets, since the technology is newly emerged and there is not any specific road map for the development process. Namely, Turkey again got a chance to catch up the developed markets. In the following parts of our study we will discuss about the structure of the market, how this new technology could be adapted to the Turkish market and how an equipment vendor can, that is to say Ericsson Turkey as being our thesis partner, achieve the greatest share in the market during diffusion process.

In order to determine the major actors that will shape the mobile Internet development pattern in Turkey, we found it important to cover the enterprises and start-ups from not only the telecommunication industry but also the companies that are functioning in related fields, namely the Internet sector.

We find three important bodies in the mobile Internet market: equipment vendors, network operators and the content providers or ISPs. The market will be shaped within this framework. The network operators will provide WAP, GPRS, or 3G technologies, these technologies will be supplied and be handed out to the end consumers through the terminals by the equipment vendors and the Internet content that could be accessed via mobile phones will be provided by the content providers and/or ISPs. Besides these actors, we will also discuss other bodies that will take role directly or indirectly in this process.

➤ *Deregulation and Privatisation*

The conditions of the tender for the privatisation of the state owned fixed line monopoly, Turk Telekom, were announced by the Turkish government on 14th of December. The offers will be accepted until the 14th of May⁶⁰.

⁶⁰ Hurriyet, 15 december 2000, <http://www.hurriyet.com.tr>

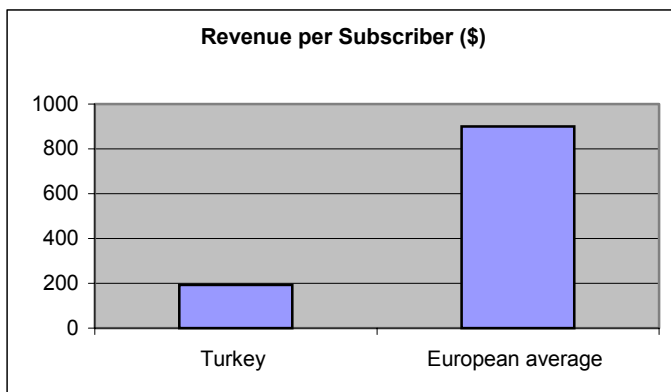
Initially, 33.5% of the company is to be sold to a strategic partner with the necessary technical ability and sound capital base. The initiative for administration will belong to the strategic partner. The government plans to conclude the privatisation in 2001 in accordance with its commitments in the stand-by agreement with IMF.

At this point, it is important to note that there is a strong resistance from various parts of the institutional network, whether be it the political parties, media, etc., towards the privatisation of Turk Telekom and deregulation in the market.

There are certain factors that may get in the way of the privatisation process, such as uncertainty in Turkish politics, which may result in dissolving of the current coalition government, the unwillingness of the global financial institutions to credit telecommunication companies with their investments in the face of overcrowding and uncertainty in the industry. In the light of these, we expect the privatisation of Turk Telekom in mid 2002.

The following figures reflect the inefficiency clumsiness of the state monopoly and thus how vital the privatisation is for the sake of the industry. Spanish telecom companies generate 7 times bigger revenues with 2 times larger capacity while Italian telecom companies generate 9 times bigger revenues with 1.5 times larger capacity compared to Turkish telecom company.

Figure 5.1 Revenue per Subscriber of fixed line telephony companies in USD



Source: Hurriyet, December 15, 2000

5.2.4 Competition assessment

In this section, we evaluate competitor strategies and try to draw a picture of the competition in the Turkish market. Ericsson's strategies, weaknesses and strengths are dealt with in a separate chapter in the following parts of this study. Thus, very little actually is mentioned here about our case company

5.2.4.1 Competitors' strategies

Considering the network equipment market, Ericsson has an apparent leadership being the sole supplier of Turkcell, market's leading mobile operator. As a result of this situation, we can say that around 70% of the total handsets used in the market utilize the network, which had been equipped by Ericsson. In addition to its contributions to the mobile communication market, Ericsson has also invested heavily in other sectors within the industry, like establishing the largest phone-banking infrastructure and setting up the broadest cable TV and Internet networks. These have been important references for the company's market leader position in the mobile network branch.

Nokia, on the other hand has still not performed any significant attempt to get share from the network market. The company's operations in the network market are limited. Considering the pre-WAP and WAP technology, the only remarkable market operation of the vendor is providing WAP gateways and there is not any definite investment in GPRS or third generation technologies. The current picture tells us about the fact that Nokia will again prefer to grow in the terminal market during the development process of mobile Internet. On the other hand, Nokia's market value in terminals market has significantly increased during the recent years, where the vendor's market share has increased to 35% leaving Ericsson behind with a market share of 30%. As we have earlier highlighted, the major reason behind this success is Nokia's comparative success in product design.

Panasonic has a unique performance in the terminal market, which is rather stable. The vendor has been holding a 12% market share during the recent years. In fact, Panasonic is supposed to present a better performance in WAP

enabled devices considering that the company has the opportunity to utilize its former experiences in Japan, where the company has been the leading equipment and device supplier for I-mode. Panasonic does not provide any corporate solutions and network equipment for the operators. The company is sells its mobile devices through its domestic distributors. We believe that 12% market share is a considerable success for Panasonic, where the company has no significant marketing campaigns or effective relations with the key players of the market. However, the vendor is still slow to cope with the market. Panasonic has just launched its first WAP enabled model in the market, where the competitors have already presented their GPRS ready devices.

Motorola has launched its services and products in the market through Telsim, market's second largest mobile operator. Motorola provides the equipment and infrastructure for GPRS and 3G technologies for Telsim network. Similar to Ericsson's services provided for Turkcell, Motorola also offers consultancy services in network design, network applications and integrations, network support and development, and network management. In the terminals market, Motorola is trying to differentiate its products with considerably low prices. Collaboration with Telsim is the main push behind this strategy, where Motorola devices are financially supported by Telsim during the import process before they are ready to be launched in the domestic market. With the help of this low price strategy, the company is able to increase its market share to 10% from 8% of the previous years. However, we find Motorola's market strategy to bear a significant risk, where the company prefers to grow through Telsim channel, which is not favoured by a majority of the subscribers in the market and as the competition in operators' market hardens, the situation of Telsim will be relatively questionable. As far as the market has proved, the players in the telecom market cannot achieve any significant success through price-cuttings in their services and products. The end customers and the operators have more expectations from the providers than merely the advantageous price offerings. In the light of these facts, we do not appraise Motorola as a serious threat for Ericsson for the coming competition in new telecom technologies unless Motorola changes their market strategy.

Alcatel Teletas has always been an important player in the fixed network solutions, but the company fails to present the same performance in mobile networks. Alcatel Teletas has an important advantage for their relations with the government and Turk Telekom, since the company was originally founded as the Research Laboratory of Turkish Telekom in 1965 and the government held its share in the company until early 1988. This blurred relationship had an important impact on government and Turk Telekom decisions for the significant state projects. However, today Alcatel Teletas can hardly respond to the needs of the mobile communication market. Therefore, we should also evaluate the position of the company in the devices market. Alcatel's strategy in terminal market is similar to Motorola. Alcatel also offers GSM products, but the recent products, which are WAP enabled, have inconceivable price advantages that can go down to \$ 60-70 levels. However, insufficient distribution network and after sales support hinders Alcatel from getting considerable shares from the market.

Siemens, on the other hand, is an important player in mobile business in US and several developed markets in Europe, with Siemens Information and Communication Networks (SICN). The company has launched HiPath for the mobile office applications, using both multimedia and Internet together. The company has already reached 1 million customers. However, Siemens did not launch SICN operations in Turkey and continued to sustain its position in energy and computer industries. However, Siemens is still one of the most important competitors of Ericsson in network business and the company is also one of the leading equipment suppliers of Is-Tim, the third mobile operator to be launched. Siemens has an important competitive advantage over Ericsson. The company has closer connections with the government institutions than Ericsson has, but there is also a disadvantage for Siemens that it has a less flexible organizational structure than Ericsson, which hinders the fast decision-making and implementation processes.

5.2.5 Customers

Turkey with a population of over 65 million naturally constitutes a large consumer base. Looking at the profile of this consumer base, we encounter that it is largely composed of young people with ages ranging between 16-35. In addition, the specific picture of this consumer group is their being largely dominated by pioneer and materialistic consumer types. We will discuss the main types of consumers later in this section. However, for the moment, we should say that these types of consumers are considerably different from the mainstream consumers in Western Europe. Without considering their earnings, young pioneers and materialists can dare to shoulder burdens that might exceed their budgets. The only driver behind this attitude is the market value of the product as well as the opportunities that the product offers.

The launch of the prepaid subscriptions has been a turning point for the Turkish mobile communication market. Although it has only been two years since the day it was launched, the number of mobile phone users with the prepaid subscription has reached to 37% of the total 11 million mobile phone subscribers in the market. Prepaid subscription neutralizes the fixed and variable costs for the subscribers. Annual fixed charges and 6.5 million TL (app. \$10) paid to Telsiz Genel Mudurlugu (Wireless Telecommunication Equipments HQ), were the main factors causing dilemma in the decision of consumers for the mobile subscription. Prepaid subscription emerged as a solution, being retained from all the fixed costs for subscription. An interesting point about prepaid subscribers is that they use the SMS services more than the regular subscribers do, according to the declarations by Turkcell and Telsim.

Looking at individual customer profiles in wireless communication and Internet market, we can classify five different types of consumer models, these are:

a) Pioneers: They are eager to obtain the latest technologies as they are newly launched. They do not hesitate to pay large amounts of money without questioning its function and utility. They might even not exactly know what it

is for, or how it operates. They are the target consumer groups in many markets.

b) Achievers: In contrast to the pioneers, the consumers in this segment examine and know the product very well and they utilize it to an uppermost extent after the purchase. This is also an interesting target group, however marketing a new technology gets a little harder when it comes to achievers.

c) Materialists: This segment has been the essential target group for many vendors. Consumers in this group are not actually interested in the technical specifications or functions of the product, but they are more into the aesthetical specifications of the product, because they usually purchase a product to associate themselves with the image of the product or brand. In this sense, it is extremely important for a product to be trendy for these users.

d) Sociables: Consumers in this segment are relatively less preferred by the vendors. Since they are basically interested in the core function of the product and ignore many specifications of the product including the brand.

e) Traditionals: They are the latest followers of the emerging technologies and they are not a target segment for the vendors. The demand coming from this segment usually stems from the reason that the usage of the product has been rather common in the market.

The characteristic of the Turkish mobile communication market is that it is dominated by the pioneers and materialists. As we have formerly mentioned the largest consumer group in Turkey is the youth in 16-35 age intervals, which have a remarkable tendency for consumption. The core functions of the product have secondary level of importance in the purchasing decision process. The value associated with the product and brand, word of mouth are primary factors that affect the consumer choice. In most cases price, together with functionality comes as later stage criteria.

Corporate consumers are not much different from the individual consumers. Vendors play important roles in shaping the clients' demands. It is too early to mention the client attitudes for the mobile Internet, but taking the Internet market as a reference we can say that the major strategies of the clients to develop their businesses are to take a European or American application and try to adapt these applications for the Turkish market. Currently, the clients do not

know exactly what they can get out of these new technologies. Therefore, they cannot clarify a strategy and road map that will help them utilize the technology in an optimal way.

We have so far presented the major balances that will affect mobile Internet development. In the following section, we will try to discover the essential needs of the market, not only for developing a specific technology, but also for being a successful player in the market.

5.3 Turkey's Major Players in the Mobile Internet Market

One of the motives for the foreign investors to consider the Turkish market is the contemporary structure of the supply market. First, there are already two mobile operators in the market that have been in business for 6 years. The infrastructure is technologically sufficient, but needs to be expanded. Secondly, and more importantly, there is an important potential of educated technical and managerial work force. Funding seems to be the basic problem in the investment process, which we will study in more detail in the drivers and barriers for the mobile Internet. However, considering that the foreign investors will also bring their own financial resources, this is not an important issue to be raised as a handicap of the supply market for the mobile communication.

5.3.1 Network operators

We had briefly mentioned the structure of the network operators market in Turkey. In this section, we will focus on these operators from the point of their investments and progress they have made so far for the mobile Internet market. We will also mention the third mobile operator, Is-Tim although they have not launched their operations yet. However, we believe that Is-Tim will be an extremely important player since they are coming with new technology, new managerial approaches and with strong financial backbone.

5.3.1.1 Turkcell

Turkcell is the leading network operator for the mobile communications in Turkey and at the same time, it is one of the largest and fastest growing mobile communications operators in Europe in terms of number of customers and revenues.

Turkcell began its operations in 1994. The main shareholders of the company are Cukurova Holding, Sonera and Fintur. With approximately 8.7 million customers using Turkcell's mobile communications network as of 7 October 2000, the operator has approximately 65% of the total Turkish mobile market⁶¹.

Turkcell has invested more than \$ 2.5 billion in the Turkish market as well as the other markets in the region since the day it was launched. The company has developed the premier mobile brand in Turkey by differentiating themselves on quality of service. The operator provides a coverage area of approximately 99.5% of the population living in cities. After the latest developments experienced in the Turkish mobile communication market, it is difficult to depict the general profile of the company's customer base. There has been a great increase in the subscription rates and because of this situation; people from different segments of the market have been Turkcell subscribers.

The close relationship of Turkcell with Ericsson Turkey is important, because Nokia has emerged as a serious threat for Ericsson since the Finnish operator Sonera got 13.3% share in Turkcell and it is known that Sonera is giving priority to Nokia as a supplier of its operations in Finland. However, this has not changed the relations between Turkcell and Ericsson. Turkcell is still a key account for Ericsson with \$ 1.2 billion contract and is one of the largest clients of the company.

Turkcell estimates that 3G technologies may top in 2003. Currently, the company is trying to expand the GPRS technologies in the major cities until the

⁶¹ Turkcell Official Website, www.turkcell.com.tr

end of the year. During this year and last year, Turkcell had some services that can be considered as a transaction step for the mobile Internet. These services are mainly WAP based, but there are also certain services that have been provided for the subscribers free of charge using the SMS services. "Cell Broadcasting" is a successful application to get the Turkish consumers used to exploiting mobile data. Generally speaking, Turkish consumers are much interested in voice function rather than the data. Therefore, we found cell broadcasting an important starting point.

We think that Turkcell has a very important competitive edge in mobile Internet development and by using this competitive advantage; it can easily achieve the largest share of the market. There is a 25% share of Turkcell in Super Online, the leading ISP of the market. We believe that the companies in this industry will be able to get the most out of the market by collaborating with the other mentioned actors in the industry. Turkcell has already had close relations with Ericsson as an equipment vendor and it can also reinforce this collaboration by cooperating with Super Online as a WAP content provider. Doing this, not only Turkcell but also Ericsson and Super Online will get more satisfactory results in the market.

For GPRS and 3G technologies, we do not find Telsim a serious threat for Turkcell. However, Is- Tim is getting prepared rather mutely, but the general opinion about the new operator is that they are coming with crucial edges that may lead Turkcell and others to rethink their strategies.

5.3.1.2 Telsim

Telsim has provided GSM 900 services in the Turkish mobile communication market since 1994. The company is 99% owned by domestic capital. Telsim has invested \$ 2 billion in the Turkish market. \$ 400 million of this investment had occurred before 1998 when the company got the license as a mobile operator. It is estimated by the company that the total investments will reach \$ 2.5 billion until the end of 2000.

The number of subscribers of the operator has also increased rapidly as a result of aggressive sales and marketing activities of the company, which are largely based on price differentiation. However, the number of total subscribers has reached 5.1 million giving the company a 35% market share behind its single competitor⁶².

The former marketing strategy of Telsim was rather harsh and directed towards its competitor. Telsim tried to establish a brand name by presenting advertising campaigns that tended to distort the competitor's image. However, this did not give any result and now Telsim is trying to make something on its own in order to market its services.

Telsim always had a competitive edge against its competitor Turkcell. In opposition to Turkcell, Telsim does not charge an initial subscription fee for its customers and the fee per minute is lower than Turkcell tariffs.

Although the services provided are more or less the same with Turkcell services, this huge gap between the numbers of subscribers of two operators is an issue to be raised here. There is not any specific information about this situation but we find it obvious that failure of Telsim is a natural result of wrong managerial approaches and weak brand image. Telsim could not specify a target group for itself and tried to get a share from the market through an aggressive pricing method. As we have mentioned, this helped to double its number of subscribers within a year, but Turkcell still leads by far in the market.

Telsim also invests in GPRS, but it is following a different method than Turkcell does. Telsim configures each switching unit to be compatible with the new technology, whereas Turkcell configures the system from a main switching unit from where the data will be launched to all units and all units will be configured at the same time.

⁶² Telsim Corporate website, <http://www.telsim.com.tr/>

5.3.1.3 Istim (Is Bankasi – Telecom Italia consortium)

Is Bankasi – Telecom Italia (Is-Tim) consortium won the GSM 1800 license in April this year after the auction prepared by Ministry of Transportation. It is expected that the market will undergo important structural changes after Is-Tim launches its operations in January 2001. The operator has already invested \$ 3 billion for the license and the duties and a few million dollars worth of additional investment will take place during the establishment process.

The competitive edge behind Is-Tim is their strong financial and technological backbone. Is Bankasi, Turkey's first and one of the largest private banks with its \$ 1 billion capital and \$ 8.8 billion assets forms the strong financial base of the consortium, on the other side, Telecom Italia's important contributions will come out in the technological issues in reference to their experience in this field.

Except for the technical and financial competencies, Is-Tim has several other important assets that may push them to market leadership in a short time. First, Is-Tim will use the latest technology, being a newly founded operator. The new technology utilization will not only allow efficiency in services but also decrease the operating costs dramatically, which is an important opportunity to provide the best service with the lowest prices. Besides, Is-Tim has already a vast customer base considering the large subsidiary portfolio with ten thousands of employees that will be willing to subscribe to Is-Tim as a mobile operator, provided that they will offer an acceptable service.

Ericsson has also established Ericsson İletişim A.Ş. in order to provide services for this new account. Ericsson İletişim A.Ş. has mentioned that the result of the auction is very important for Ericsson, since Telecom Italia has a supply agreement with Ericsson for the whole world markets, therefore without any question of competition Ericsson became the sole equipment vendor of Is-Tim.

The strategy of Is-Tim is rather controversial in the market. As we have mentioned, Is-Tim has already invested more than \$ 3 billion in the market and some executives in the industry think that in the short run, Is-Tim will try to

amortize this investment; therefore, the new operator will not be much interested in GPRS or 3G technologies. However, with regard to our interviews in Ericsson, we came out with a conclusion that these expectations will not come true. Telecommunications market is rather a dynamic and ever changing market. For an operator, in order to keep competitive, it has to cope with every development in the industry, otherwise technology expires very rapidly and all the investments that had been made could end up in a frustration. Same situation is valid for Is-Tim. If the operator tries to collect the outcomes of its current investments without following the new trends, the technology they have will expire and over \$3 billion investment will not provide the expected returns.

5.3.2 Application developers/ Content providers / ISPs

We think that one of the main obstacles for the development of mobile Internet in Turkey is the insufficient level of Turkish content. This has been the major problem during the establishment stage of the Internet in Turkey and still we cannot say that this problem has been solved.

At present, the competition in ISP market is rather challenging. Although the pioneers in the industry could not have the chance to turn their investments into profits, many entrepreneurs dared to get into the market with the expectations of a booming industry. Most of these entrepreneurs are small or big companies whose core business is different from the computer and telecommunication industry. The motive that drove them to invest in this business is that they find it a useful marketing tool, which will help them to increase their marketing gap and they find it important to have the opportunity to utilize these brands that they created in ISP industry in their other business areas. However, this approach had a negative effect on the development of the ISP industry. As the new actors emerged in the market, the quality of the services provided has diminished, because it was a price driven competition. Today, approximately US\$ 1 billion is needed in order to establish an appropriate ISP. However, several entrepreneurs managed to establish their services with costs of US\$ 100,000 to US\$ 1 million, which removed the entrance barriers of the industry based on costs and allowed many actors to get into market. Because of this

situation, users came across with a wide variety of ISPs, which lack in service quality.

5.3.2.1 Super Online

Super Online established operations in 1996 and is 100% owned by Fintur shareholders (25% Turkcell, 19.44% Yapi Kredi Bank, 35.3% Sonera, 12.67% Cukurova Holdings and 7.59% Cukurova Investments). With 310 employees, Super Online has managed to increase its customer base from 125,000 in January 2000 to 263,000 by end June 2000, with the use of various promotional campaigns. Currently 24% of Turkey's Internet subscribers are with Super Online (as of September 2000). It aims to increase this and have one million subscribers by this year-end⁶³.

As mentioned before, we find the key success factor in mobile Internet market in the extent that the companies can cooperate with each other and create a synergy. For instance, Super Online, Turkcell and Ericsson trio has already established a synergy through partnerships or cooperation; this should be transferred to the mobile Internet market, because we also find diffusion as the most difficult and important stage of the mobile Internet market. Today, technology is open for the use of every actor in the market. Achieving the most from the market should be essential.

5.3.2.2 Ixir

Ixir was established in September 1999 as a subsidiary of Dogus Holding. Dogus Holding owns 41% of Ixir, Garanti Bank and other individuals own 39% and 20% respectively⁶⁴. The Dogus Group is mainly a service company in the banking and automotive imports sectors. It expanded into media recently with the acquisition of TV channel NTV and is co-operating with Microsoft's MSN and News channel NBC.

⁶³ Interviews – Ericsson Turkey, October 2000

⁶⁴ Interviews – Ericsson Turkey, October 2000

Within five months of establishing Ixir, the company launched its ISP and four months later it became the second largest ISP in Turkey. In June 2000, it had achieved the fastest subscriber growth rate in Turkey, with 1,700 new joiners a day. By end-June 2000, it had an estimated 15% of Turkey's Internet subscribers or 170,000 members. 8,000 sales points and 450 retail stores helped Ixir manage to generate such a fast growth rate.

Here, Ixir has another synergy that will create a different edge than Super Online with Ericsson and Turkcell. Since Dogus Holding holds a 41% share in Ixir, then Ixir might overcome the second greatest problem to be faced in the development of mobile Internet. Finance in order to fund new thoughts and projects is the second important handicap of the market after the insufficient Turkish content. Using the financial resources of Dogus Group and getting publicity with the help of the media intermediaries of the Group will solve many problems from the beginning.

5.3.2.3 Vestelnet

The company was established in 1997 and Vestelnet Elektronik holds 88.25% share in the company. Other group companies hold the remaining shares. In order to maximize its customer retention rate, Vestelnet had a stock option plan that offered its first 50,000 customers 2% of the company's shares provided they honoured their three-year agreement for Internet access. In June 1999, Vestelnet launched a personal computer (PC) bundle product called Veezy Go, which offered customers a PC and Internet access for three years (and Veezy Credit Card). In the first five months following the launch, the company attracted 68,000 subscribers. Unsurprisingly, KocNet, IhlasNet and the Medya Group (Turkport) copied this business model, though four months later. The latest offer from Vestelnet is Veezy Fun (Funkey), launched in May 2000, which is a similar campaign, aimed at attracting another 100,000 subscribers within 1 year⁶⁵.

⁶⁵ Interviews – Ericsson Turkey, October 2000

Vestelnet has generated a strong brand name through effective advertising and marketing. The potential synergies with the Vestelnet Group offer some competitive advantages over the competition, as does their investment in a state-of-the-art infrastructure. Their security system, a built-in card reader on the keyboard, may provide some edge in the short term, since security is one of the issues raised to be discussed for the mobile Internet. On the other hand, there is also an opportunity to create a synergy with Microsoft, Lucent and Sun Microsystems for the mobile Internet market similar to the one that has been done for the Internet.

5.3.2.4 Turk.net

Turk.net was established in December 1995 originally as an ISP for consumers and corporations. Sabanci Holdings, one of Turkey's largest two conglomerates, acquired a controlling 70% stake in 1999 for \$ 25 million. With strategic and financial commitment, Turk.net is well positioned for growth. Management has invested \$ 25 million to date – \$ 10million in the past eight months. The network has won both the Interpro Most Active Internet Service Provider Company Award and MacWorld's Internet Service Provider of the Year Award 1998⁶⁶.

In February 2000, the company began servicing and operating www.akbank.net.tr, Akbank's ISP with the aim of capturing 110,000 subscribers of their forecast for a 330,000 year-end subscriber base.

At present Turk.net is not collaborating with any wireless companies. It provides an SMS service, runs a WAP portal and has services that are device and operator independent and interconnected between multiple devices. Indeed the latest news from Sabanci is that they are pulling out of the race to bid for Turk Telecom. This news keeps them further from the telecom sector and may put pressure on Turknet to seek out a mobile partner.

⁶⁶ Interviews – Ericsson Turkey, October 2000

In our view, there will be pressure on Turknet to seek out a strategic alliance or merger with another portal/mobile operator in the coming months. They are not sufficiently differentiated from the rest of the market to warrant a strategy to continue alone and we think that Sabanci will be unwilling to pour unlimited funds into this area.

5.3.3 Equipment Vendors

Equipment vendors have two-way importance in the value chain. In fact, they are the players who start and finish the process. Most of the equipment vendors provide the technical hardware for the switching units and the networks but at the same time, they also offer handsets for the end users.

In this section, we will discuss the situation of the closest competitors of Ericsson in the Turkish mobile Internet market. However, we should also say that Ericsson is not only an equipment vendor that merely tries to sell its products and services. The company also tries to bring the new technology into market, establish it properly so that many industry actors, including Ericsson can get benefit out of it. In this sense, Ericsson is not only a market leader in Turkey but also an absolute market maker.

5.3.3.1 Ericsson

Ericsson is the market leader for the network segment of the industry and has long been the leader in the devices market, but the company has lost its market share in terminal market. The main reason behind this result is that the company sees the network market as the real profit generating branch and puts a significantly higher emphasis on this business. The wireless telecommunication infrastructure market in Turkey is worth around \$ 21 billion and Ericsson has a market share of 28% and is followed closely by Lucent Technologies with a market share of 22%⁶⁷. The competitors on the other hand, are mainly in the market to sell their cellular devices. Considering the concentration of their marketing efforts in this business area, it is a rather

⁶⁷ Finansal Forum, 1 November 2000

acceptable consequence that Ericsson has experienced a decrease in its market share in terminal market

The company is differentiating itself from the customers by providing total solutions and key-turn projects for its corporate clients. Beside, Ericsson has a first mover advantage that has been operating in the market for more than a century. Being the first in the market enables the company to distinguish the needs and trends of the market, which makes the company a “market maker” in addition to its leadership in different business segments

5.3.3.2 Nokia

Nokia is the closest competitor of Ericsson in terminals market. In the previous years, the market share of Ericsson had obviously been larger than Nokia, like 50% to 30%. However, in recent years this situation has changed in favour of Nokia where Nokia had a slightly larger share than Ericsson has. The main reason behind this result is that market value for Nokia has considerably increased. In addition, Nokia insisted on the production of more fragmented models with slightly higher prices, since they object to the idea of shifting the production plants to low cost labour areas. However, Ericsson thinks that the earlier 50% market share is not a usual rate for a mature market and this decrease in the market share was inevitable and adds that handset market is not a profit-generating business area. Therefore, Ericsson Global plans to shift the production plants to low cost labour regions, which will help them to achieve their long-term strategies, including an at least 10% profit margin.

However, on the network side, the situation is totally different. Nokia is mainly trying to sell its handsets in Turkey, whereas Ericsson is trying to build the infrastructure for the new market. Naturally, on this point we can mention a first mover advantage of Ericsson. However, diffusion phase is extremely complicated. Ericsson is bringing the technology, building the network but in the case that a good strategy is not established, Ericsson might get the same or less share than whatever Nokia or others can get from the market.

5.3.3.3 Panasonic

The market position for Panasonic in Turkey has been stable during the recent years. In contrast to Ericsson and Nokia, Panasonic's market share has not changed dramatically and stayed between a 10-12% interval.

Panasonic has an important advantage in 3G technologies, since it is one of the major suppliers for NTT DoCoMo's i-mode and this technology is currently more complicated than WAP technology. With the accrued experience from I-mode, Panasonic is able to come out with new applications that will challenge the closest competitors' positions. However, this is what is expected from Panasonic, but the company seems to be rather unhurried in this competition. Panasonic has been one of the vendors, which prefers to follow the market leaders or pioneers to launch a new product. Therefore, market value for Panasonic is rather low. Besides, the company has not any significant investment for the infrastructure and has a relatively weak performance as a terminal vendor.

In the light of these facts, Panasonic could not present any serious attempt to cope with the market leaders. However, 10% market share is still satisfactory for the moment. However, as the market matures and customers demand more fragmented products, this market share tends to decline.

5.3.3.4 Motorola

Similar to Ericsson's solution for introducing GPRS into a GSM system, which will latterly be explained, Motorola provides low cost investment models for the mobile operators that are willing to promote their networks for GPRS. This advantage is a natural outcome of company's strategic alliance with Cisco Systems, the data networking market leader in the world. The Motorola/Cisco GPRS architecture can be implemented over an existing GSM network, protecting operators' investment. Motorola's GSM infrastructure systems are GPRS-ready, requiring only a software load with no modifications to existing hardware.

Motorola has been investing in the market through its collaboration with Telsim, market's second largest mobile operator. In February this year, Motorola and Telsim announced an agreement valued at \$100 million for Motorola to provide infrastructure, handsets and associated services to expand Telsim's GSM network. As part of that agreement, Telsim has named Motorola as its exclusive regional supplier of GSM 900 equipment over the next three years. The motive for Motorola behind this supplier agreement was that revenues from these operations could be at least \$1.5 billion according to Motorola's Public Relations⁶⁸. Motorola, together with its strategic alliance partner Cisco Systems, has supplied the GPRS technology equipment for Telsim, which was launched by the operator during early August this year.

Although, Motorola's investments have been significant in the market, the brand value of the company is still in the handset market, revealing a 10% market share, however it is also important to see that this rate has grown from 8% levels during the previous years.

5.3.3.5 Siemens

Siemens market strategy is rather similar to Panasonic's, where the company has preferred to generate the revenues from business areas other than mobile telecommunication. The company is an important player in the energy and computer industries. Siemens has also important connections within government and Turk Telekom, which increase the importance of the company as a competitor for equipment suppliers.

Siemens pursues a "me, too" strategy in the handset market with its latest WAP enabled mobile phones launch. Nevertheless, as a result of the insufficient distribution system, the product could not achieve enough customer awareness. Beside the distribution channel used, we find Siemens as a rather late mover for the handset market. Siemens has preferred to stay in fixed line business when mobile communication began to grow and now we believe that it could be

68 Turkey's Telsim Launches GPRS in \$100 Million Motorola Deal, 01.08.2000, Cisco official website, www.cisco.com

slightly late for the company to grab a satisfactory share in the market, but as we have highlighted, their connections with the government could be an important asset for the network market.

5.3.3.6 Alcatel (Alcatel Teletas)

Alcatel Teletas has an important competitive advantage in the fixed lines. Although the company operates with a wide product range, including also Data Communication Systems, Internet Access Products, Broadband Applications (ADSL, ASAM, DANA, XDSL), Remote Access Unit Systems, and Internet Access, their significance in the market is in the fibre optic cables. Being established as a Research Laboratory for Turk Telekom in 1965, the company is still close to government and is usually assigned for several government projects in telecommunication.

The company also tries to be more active in mobile communication market. The company decided to collaborate with Sabancı Holding A.Ş. and Doğuş Holding A.Ş., the two of the largest conglomerates in Turkey⁶⁹. The reason behind this collaboration is to provide the necessary technical and financial base to shoulder the responsibilities that will be profiled in the proposal given to Turk Telekom auction in order to supply service and equipment for GSM 1800 services. This recent action reveals that the company is willing to take part in mobile communication with strong partnerships.

In the handset market, the company has been successful in grasping considerable market shares by launching latest technology products with relatively low prices. Lately, Alcatel's WAP-enabled products have been sold from levels, such as \$ 100.

5.3.3.7 Netas

Netas was originally established as a joint venture with the Turkish PTT (now Turk Telekom) in 1967 to manufacture switching exchanges and other

⁶⁹ Alcatel Turkey official website, <http://www.alcatel.com.tr>

equipment for the national telecommunications system. In 1993, the Turkish PTT transferred its shares in Netas to public ownership in line with government policy. Netas now manufactures its own equipment for customers in Turkey and parts of Eastern Europe.

Employing 1,650 people, 375 of whom are involved in R&D, Netas is the largest private R&D organization in Turkey. The joint venture provides Nortel with manufacturing, technical assistance, installation, and R&D support on various projects. It also directs sales activities in several markets, including republics in the former Soviet Union, Europe, Central Asia, the Middle East, and Africa.

Netas provides services for state owned network operators, service providers together with the business systems of the army. For this reason, Netas provides static and mobile equipment for data and voice transfer. The enterprise is 53.13 % owned by Northern Telecom (Nortel) International Finance BV and 15% of the shares belong to the Foundation to Support Turkish Armed Forces and the remaining 31.87% is held by public investors. Netas has been quoted on the Istanbul Stock Exchange Market since 1993.

The company has established its operations on the fixed lines and significant investments for the wireless communication have not been declared. However, their close relation with the government is an important asset for the company.

5.4 Financial Institutions

Together with the lack of sufficient Turkish content, financial resources to fund the projects and ideas to develop the mobile Internet market are also another problem for the moment. There is a need in the market for venture capital in order to ease this problem. Banks stand as important entities of the financial sector. They invest in the new technologies. However, these are only marginal levels of investments stemming as a result of a “me too” strategy and at the moment, they are not willing to fund the start-ups and projects, excluding some

of the major banks like Türkiye İş Bankası, which will establish a risk capital fund of around \$ 29 million.

On the other hand, international investors also became interested in the Turkish market after the current government's successful implementation of privatisation program with the economic program to decrease the inflation rate. According to International Institute of Finance's estimation, there will be \$ 13 billion capital flow to the Turkish market, from which \$ 10 billion might come as portfolio and the remaining \$ 3 billion will come as direct foreign investment. The government is also bringing new regulations into question in order to increase the level of foreign capital inflow. It is projected that the new regulations will essentially neutralize the barriers putting on ice the flow foreign capital by providing the same conditions with the domestic capital for the foreign capital flowing in.

5.5 Market Dynamics

The factors that will have most impact on mobile Internet development in Turkey could be depicted as follows:

- The level of mobile penetration and mobile devices in the market
- The level of Internet penetration and Internet purchases via PC in the market
- The level of consumer acceptance for m-commerce applications and services
- The number of partnerships between network service providers, financial service providers, other content providers and system integrators
- The number of user-friendly pre-WAP and WAP applications on the market.

Mobile phone penetration rate in Turkey is much higher than the PC penetration. The Internet penetration is expected to reach to 3.7% while the

mobile telephone penetration will hit 19% by the end of the year⁷⁰. It is generally believed that the usage of mobile Internet will exceed and in some cases replace the usage of conventional Internet. However, we also think that mobile Internet will not totally replace PC usage for the Internet, but these two mediums to access Internet will operate in a complementary way. One of the major key success factors in developing a successful mobile Internet application will be the structure of the services that will be provided for the consumers. Mobile Internet should be able to offer services, which are based on real time information, and services that are not practical to perform via conventional Internet.

It is estimated that the gap between the penetration growth rates of mobile phones and the Internet will broaden during the following years. For instance, by the end of 1999, mobile phone penetration rate had revealed 13%, whereas PC penetration rate was only 2.3%. On the other hand, looking at 2004 estimations, we see that the mobile phone penetration rate is 43% where it is only 10.1% for the PC penetration⁷¹. There are several reasons that might support this projection.

The main reason behind this gap is the cost of the technology. As we have earlier mentioned device prices for mobile communication is diminishing constantly as the technology expands. This is also valid for the PC prices, however the price of a regular PC that can enable a user to access the Internet might still be costly for most of the consumers.

Portability is another factor that might drive the mobile applications and m-commerce. Considering that access to WAP pages and specific Internet applications via mobile phones will be more convenient with the third generation mobile communication technologies, many Turkish consumers will prefer cellular phones to PCs. This preference largely stems from cultural behaviour. In contrast to the societies in Western Europe, Turkish people tend to spend their spare time outdoors rather than staying at home. Suitable climate

⁷⁰ Interviews – Ericsson Turkey, October 2000

⁷¹ Interviews – Ericsson Turkey, October 2000

of the region is the basic factor behind this habit, where the sunshine could be enjoyed through the four seasons of a year. Besides the climatic factors, we can say that Turkish society has a collective structure, where the individuals prefer to spend their time off with their families and close friends instead of staying at home by themselves. Therefore, mobility comes out as an important and unique criterion for the Turkish consumers.

The possibility to create synergy among different players in the market is also another key factor for the development of the market. Market's leading mobile operator has strategic alliances with Ericsson and Super Online, Turkey's and Europe's leading ISP for the individual users.

Pre-WAP applications are also a successful start for the current stage of development. Turkcell's cell broadcasting related to football matches being played is an application, which is appreciated by the subscribers, and create a good basis for the future usage of their cellular devices.

Market positioning is another issue to rise here, since mobile Internet is an emerging market and it is important for the players to position themselves optimally in the market until the revenues are generated. We think that strategic partnerships and 'early mover' advantages will be determining factors for players looking to establish their market positions.

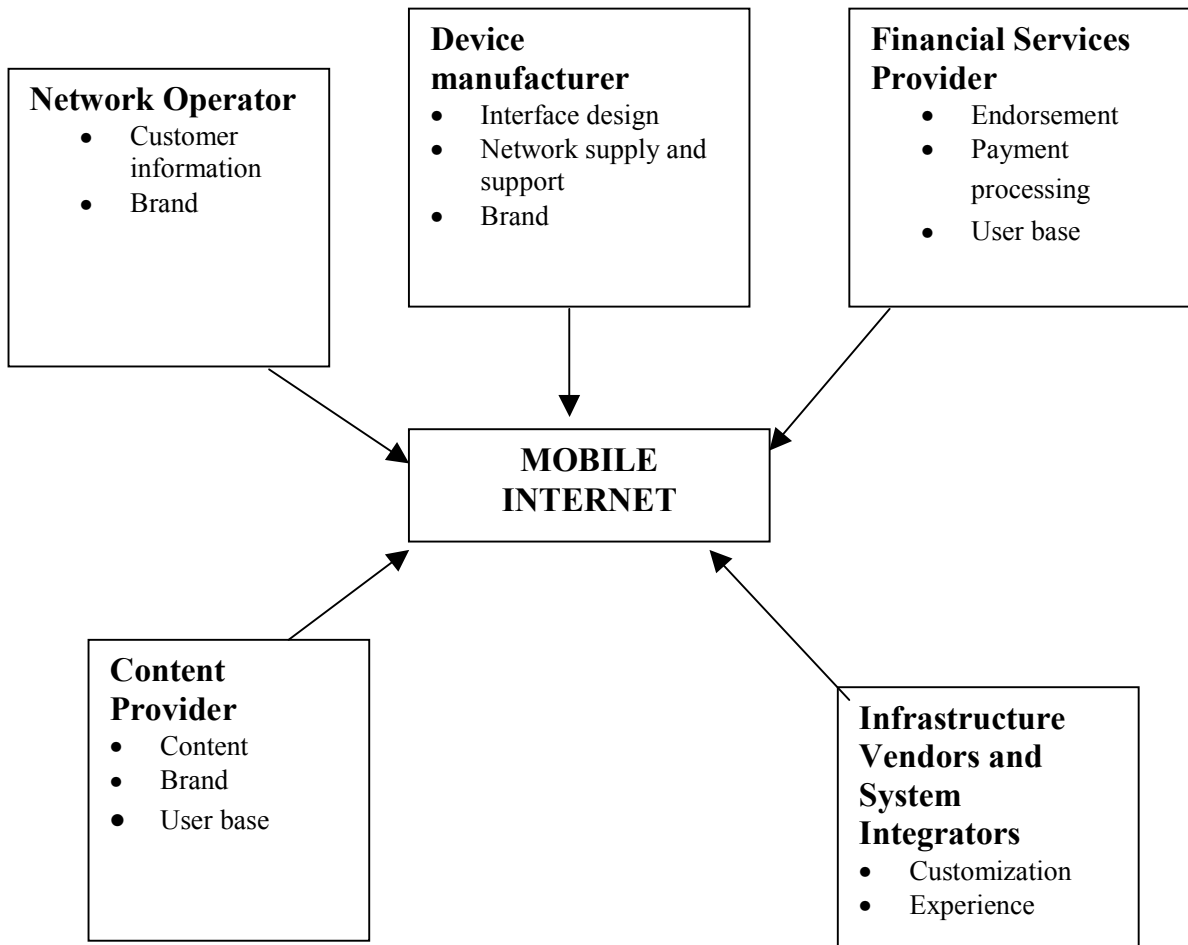
The appeal of mobile Internet is that it creates a real-time information channel. Strategic partnerships and joint ventures will be vital for equipment vendors, network operators, financial service providers and content providers seeking to establish a direct, personalised channel to the customer. The biggest issue for most businesses will be to determine what type of alliances and partnerships will add the most value to their market offering and improve their market position.

Being an early mover has significant advantages. Companies should not wait until the completion of their overall e-commerce strategies or until the market has matured before developing an m-commerce strategy. M-commerce, like e-commerce, is a market opportunity that will work for companies, which have

become accustomed to operating in Internet time. Early movers will be able to shape markets, develop industry standards and gain market share. Therefore, we find Ericsson Turkey as the potential market leader, since the company is not only market leader in mobile telecommunication market but also market maker for mobile Internet in Turkey.

From the establishment of the infrastructure to the performance of first service, a number of players will drive mobile Internet in Turkey, providing a range of both competing and complementary services as shown in Figure 4. Each of these players will bring a set of resources, assets and skills to the mobile Internet market. As we have already mentioned, the key player in this picture will be the one that possesses the most significant relationship with the customer and other players.

Figure 5.1 Market players in the development of mobile Internet



Source: Own

In this stage of the market, there is also a global debate concerning whether to put the intelligence of the new technology on the devices or within the SIM cards. We also find the outcome of this debate crucial, because it will create a competitive advantage for the equipment vendors or the network operators according to the decision taken.

5.6 Drivers and Barriers of Mobile Internet in Turkey

5.6.1 Drivers

5.6.1.1. Low PC penetration rate

Although the penetration rate in the PC market is growing remarkably, the figures still reveal considerably low levels compared to the West European markets. This result mainly stems from the fact that PCs are still not economical enough for most of the end users although a variety of sales campaigns have eased the purchase of PCs. Besides, PCs still keep their complexity for the usage of elder generation. These are important factors that will drive the preference of mobile devices over PCs.

5.6.1.2. Internet Services used

The type of Internet services that are used mostly is another driving force behind mobile Internet. Looking at the customer profile of the market, we encounter with a majority of young consumers within the age interval of 16 to 35. This considerable segment of the market utilizes Internet for e-mail, entertainment and chat, which are the applications that will also be provided via mobile devices. The elder users prefer to use Internet for their professional tasks, which are generally task-based transactions, which can also be performed in mobile Internet technology. Therefore, we can say that mobile Internet will respond to the basic needs of the majority of customers.

5.6.1.3. Mobility

Accessing and sending information when one is in motion could play a critical role in Turkish market. Today's business life is going towards a more mobile phase. Similarly, certain cultural aspects of the Turkish society are factors that increase the importance of mobility provided by mobile Internet.

5.6.2 Barriers

5.6.2.1 State monopoly in telecom market

Although the impact of this monopoly will be removed to a large extent after the privatisation of Turk Telekom, probably in 2002, currently state monopoly is an important barrier against the development of mobile Internet and m-commerce. M-commerce in particular is directly affected by state monopoly, where Turk Telekom charges a 15% tax for all income obtained by the network operators. This situation hardens the development of m-services, where it will be rather costly for the end users to utilize these services while an additional 15% income tax is being charged with each transaction.

5.6.2.2 Cost of services

Currently the flat and variable rates for the mobile communication services are considerably high and with the present standard used, it is not economical to use mobile Internet services. The market will certainly enter a new phase when GPRS standard is launched in the beginning of 2001. It will replace the circuit-switched networks with the packet-switched networks, where the same line is shared by more than one user and the speed of data transfer will increase up to 115 kpb /s, almost 20 times faster than today's GSM technology. In addition, the users are charged per transaction on GPRS network, which will have a direct impact on mobile transaction costs.

5.6.2.3. Common usage of GSM technology

Only 150,000 of total 11 million mobile subscribers in Turkey are currently using a WAP enabled device and the penetration rate for WAP enabled models is relatively low. Even if the necessary technical infrastructure is fully established for 3G technologies in the following years, we believe that there might still be the possibility for existence of a user majority who will be unwilling to upgrade their current models to another model that provides Internet access. The equipment vendors should come up with exceedingly low

prices and striking product facilities in order to attract these mobile phone users.

5.7 An Evaluation of the Market

We believe that with the release of GPRS and 3G technologies, mobile Internet will gain pace in the Turkish market in contrast to the previous wireline Internet experience. The reason is that mobile Internet covers a larger extent of the industry when it is compared to any other conventional or new industries. Mobile Internet will have impact on industries differing from telecommunications to IT, finance, retail and media. While the potential audience and potential revenues for mobile Internet is huge, there is also considerable uncertainty regarding the best approach to achieving these revenues. We believe that during the establishment stages, the players will take part in the Turkish market because of a “me too” strategy without knowing exactly what the application is for and what the long-term financial expectations are.

Together with the insufficient levels of financial resources to fund the new projects, Turkish content comes out as an important problem for the development of the market in the short run. Different from Western Europe, particularly Scandinavia, there is not enough risk capital for the development of new technologies, and current financial institutions such as commercial and investment banks are not willing to invest in start-ups. However, during our interviews with several players in the market we encountered the outcome that it is not an important issue to obtain financing in the Turkish market as long as one has a well-structured and practicable project. Therefore, content seems to be the sole barrier in the short run.

Network technology is another issue to question as a barrier. Networks are about to change radically with the introduction of packet data and later moves towards third generation. With the privatisation and liberalization of Turk Telekom, the implementation of the new technology will occur at a relatively

rapid pace. Additionally, as the competition gets harder, the supplier push for the national carrier will be more effective.

We find the optimistic figures concerning the mobile phone penetration as the major driver for the development of the market. Killer applications coming with the mobile Internet will be another driver for the increase in mobile phone penetration. Personalization is a key factor to attract more players to penetrate the market, since it creates customer loyalty, which weakens the possibility to churn. Potential revenues could be another factor that will motivate the players in the Turkish market. Although revenues will not be significant in the early wave of applications, the revenue potential for all players is significant.

As it is earlier discussed, we expect that the network operators are closer to obtaining the larger share of the revenues in the mobile Internet market during the development phase as a result of increased airtime traffic on their networks. However, the situation is not accurate for the network operators in the Turkish market. It is an important handicap that the Turkish content on the Internet is not at sufficient levels. Therefore, network operators will certainly rely on the performance of the content providers and ISP/portals. Otherwise, network operators should go for a vertical integration and try to launch Turkish content in order to generate demand. However, this is not financially and technically practical for the Turkish mobile network operators.

5.8 Comparative Analysis of the Turkish Mobile Internet Market

After having presented the outlook for the mobile Internet market in Turkey and in developed country markets, especially in Europe that leads the adoption of mobile Internet along with Japan, in this section, we will make a comparison between the two. Our aim is to highlight the main concerns and potential opportunities and threats in the diffusion process of this new technology in emerging markets by using the Turkish market as a case. We have decided to conduct a SWOT analysis to identify these concerns.

First, we discuss the findings of a quantitative research, Global Diffusion of Technological Innovations, which might give some useful insight regarding our analysis below.

5.8.1 Global Diffusion of Technological Innovations⁷²

In this paper, the authors propose a new methodology called the "coupled-hazard approach" to study the global diffusion of technological innovations. To illustrate the method and generate substantive insights, the authors apply the approach in the context of the telecommunications industry using data on the global diffusion of **digital telecommunications switches** across more than **160 countries on five continents**. We will not go into details of this approach, the methodology used and the numeric findings of the study. However, we will present their findings and comments that could be useful for the interpretation of our analysis.

The authors suggest that the diffusion processes result in the acceptance or penetration of a new idea, behaviour or physical innovation over time by a given social system. In a global context when the two social systems are the community of nations, diffusion across countries takes place in two distinct, though related phases: **the implementation or trial stage** and the **confirmation stage**.

The objective of the research is to understand the diffusion dynamics of a special product category, technological innovations, which requires that diffusion theory and the resulting models be adapted to take into account the effect of **network externalities**. Technological innovations such as computers or telecommunications products tend to have unique characteristics as compared with other industrial or consumer goods. In particular they often exhibit 'network externalities'⁷³ in which consumers benefit from other consumers' use of a product based on the same technology. This is particularly true for the phenomenon we study, the mobile Internet. These network

⁷² Dekimpe, Parker and Sarvary, (2000)

⁷³ Katz and Shapiro (1985)

externalities mean the diffusion process of technological innovations require increased coordination of consumer behaviour and the standards and supervision by central decision makers whether it be an industry association, the governments or some other initiative. This is true especially in the early stages of the diffusion process.

The authors argue that the global adoption of a technological innovation comprises two stages⁷⁴, which are conceptually different (but related measures of innovativeness across countries:

- The time between an innovation's first availability in the world and its first appearance in a country, that is the implementation stage
- The time between the innovations initial trial in a country and its full adoption or substitution, that is the confirmation stage

The empirical results provide interesting theoretical insights that also have important managerial implications. We summarize these results below

- The more countries that have adopted or the longer the international experience with an innovation, the higher the chances that other countries will also implement the innovation.
- For the empirical case studied (digital telephony), it is found that innovative countries are **wealthier**.
- Countries with homogeneous social systems reach full confirmation faster. Homogeneity might be in terms of ethnic diversity, income distribution and the like.
- Laggard countries (the late adopters) have faster within country diffusion rates.
- For the rates describing transitions to full substitution, the data provide strong evidence for a negative **installed base**⁷⁵ effect. Even if the innovation is available in the social system, social system members are reluctant to

⁷⁴ Rogers, Everett M. (1983)

⁷⁵ In this case it is the analog telephony

switch to the new technology. In our case, the conventional GSM services mainly based on voice-transfer could be considered the installed base. However, users prefer to replace their handsets very frequently. The typical average time to obtain a new handset with new features is around 18 months⁷⁶.

In the light of these findings and the analysis we have presented so far, we develop a SWOT analysis comparing the developed country market and the Turkish market.

5.8.2 SWOT Analysis

The following table summarizes the strengths, weaknesses, opportunities and the threats regarding the Industry development in Turkey. Each of these is discussed in details in the following sections.

⁷⁶ Financial Times, 06 December 2000

Table 5.3. SWOT table regarding the comparative analysis

<p style="text-align: center;">➤ Strengths</p> <ul style="list-style-type: none"> ▪ Modern telecommunications infrastructure ▪ Presence of skilled labour in IT field ▪ Established free market structure ▪ Increasing competition in the mobile communications sector ▪ Well-educated young generation that constitutes the majority of the population ▪ High levels of regional and income inequality 	<p style="text-align: center;">➤ Weaknesses</p> <ul style="list-style-type: none"> ▪ Macro-economic and political instability ▪ High degree of State control in the telecommunication industry (e.g. fixed line monopoly) ▪ Weak financial institutions and ill-structured capital markets ▪ Low education level on average ▪ High levels of regional and income inequality
<p style="text-align: center;">➤ Opportunities</p> <ul style="list-style-type: none"> ▪ Many large cities in the West with close to EU average level of income and needs of mobility and real time information ▪ Liberalisation and deregulation of the telecommunication ▪ Gateway to the regional countries as well as the Middle Asian Turkic states ▪ Low penetration rate wireline Internet (mainly, access from a PC) ▪ Significant level of GSM penetration 	<p style="text-align: center;">➤ Threats</p> <ul style="list-style-type: none"> ▪ High cost of GPRS and other new generation technologies compatible terminals (handsets) against lower than EU level of average household income ▪ High degree of resistance against the privatisation of the fixed line monopoly and deregulation in general ▪ Expected negative economic growth in the short run ▪ Bottlenecks may occur when the platform takes off and growth gains pace ▪ Low penetration rate wireline Internet (mainly, access from a PC) ▪ Significant level of GSM penetration

5.8.2.1 Strengths

As mentioned earlier, Turkey has a modern telecommunications structure, both in terms of mobile and fixed line networks, which are comparable to the ones in Western Europe. At this moment, the skilled labour supply for both for

technical and administrative jobs is adequate⁷⁷. Turkey is one of the most established and oldest (!) emerging economies, where all required major institutions are present. The competition in the mobile communications sector is increasing. This is expected to accelerate the adoption of new technologies and diversify the services while bringing the prices down for the end users. These in return would increase the diffusion rate of the mobile Internet platform in Turkey.

On the consumer side, it is worth noting that well-educated young generation constitutes the majority of the population in the Western regions. This segment is a perfect example of a global cultural affinity class. Cultural affinity classes exist in terms of age brackets or, more generally, across socio demographic categories, for example people between the ages of 15 and 20 all over the world⁷⁸. It is generally accepted that consumption behaviour, values and lifestyles among the young generations, especially aspects regarding hi-tech products and services are more homogeneous in a global context than they are for the older age groups⁷⁹. Young people easily adopt new technologies and like trying new products and services in general. This generation is much more used to data usage than the older generations, which associate communication with voice rather than data transfer.

Turkey as a developing country has significantly lower levels of income compared to i.e. EU averages. At first sight, this seems to be a great barrier for the rapid penetration of technological innovations that normally require significant purchasing power to adopt. However, Turkey is a country that experiences high levels of inequality in income distribution as well as regional inequalities. Although it is not possible to make objective forecasts about the size of the consumer groups with income levels similar to EU averages⁸⁰, one

⁷⁷ This issue has been brought up in all our interviews with professionals from different parts of the value chain and this interpretation reflects the common opinion.

⁷⁸ Usunier (1996)

⁷⁹ Usunier (1996)

⁸⁰ The last study that concerns the income distribution and the changes in income levels of the different segments of Turkey was conducted in 1994 by DIE (State Institute of Statistics,

could conclude that in the industrial agglomerations in the west and the Mediterranean coast there are around 3 million consumers of that kind. If the purchasing power parity is used as a criterion these numbers could reach up to 6-7 million consumers. Based on this calculation we conclude that the potential number of users that could be able to utilize services and products offered via mobile Internet could reach up to 10 million people, given the tendency of the general Turkish consumer that would not hesitate to spend a larger share of his/her income on technology related products and communication than their European counterparts⁸¹ would do.

These factors come up as strengths in the overall evaluation of the Turkish market.

5.8.2.2 Weaknesses

Turkey has been the victim of many crisis caused by the macro-economic and political instability during the 90s. We have already discussed this in the beginning of Chapter 5. This atmosphere is likely to continue at least in the middle term, as there have not been any significant changes in the institutional network to suggest otherwise.

The excessive degree of control by the State in the telecommunication industry (e.g. the existence of a state-owned fixed line monopoly) may harm the development process of mobile Internet as well as other technological innovations as the political and ideological concerns may override the economic wisdom in decision-making.

Weak financial institutions and ill-functioning capital markets is another problem of the Turkish economy. These do not only limit the effective flow of national funds towards investment projects but also scare away the much-

www.die.gov.tr). Thus, it is not reliable as there have been many economic developments with significant redistributive effects since then.

⁸¹ This opinion about that tendency of the average Turkish consumer has been shared by all our interviewees. It is also in accordance with our own observations though we have not been able to come across any quantitative research with results to justify this interpretation.

needed foreign capital flow. We have already discussed the importance of venture capital investments in the development of the mobile Internet market.

On the consumer side, one of the biggest problems is the low level of overall education and a lack of orientation in the educational institutions towards information technologies. These factors limit the ability of the consumer to get used to using complex technical devices such as the WAP and GPRS compatible end-user terminals. They also act as a barrier to shift from voice communication to more sophisticated data communication activities.

We have cited the 'high level of regional and income inequalities' as strength in the previous section. However, this could also be seen as a significant weakness as it narrows down the potential customer base, especially in the initial phases of the diffusion of the mobile Internet. We have already discussed the importance of network externalities for technological innovations⁸².

5.8.2.3 Opportunities

The real power of mobile Internet is its ability to bring (1) real time information (2) anywhere, (3) anytime. We have already discussed that. It is obvious that these features can be best exploited and turned into cash in large cities where people are most mobile and need real time information in the complex environment of the large metropolis. In Turkey, there are many large cities of the kind in the West with household incomes close to EU average level of income. Industrial agglomerations such as inner city Istanbul zone, Izmit, Bursa, inner city Izmir and Adana are a few of these towns, which offer opportunities for the development of products and services on the mobile Internet platform.

Liberalisation and deregulation of the telecommunication industry and the privatisation of the national fixed line monopoly will attract global players and bring new opportunities to the industry.

⁸² See section 5.10.1.

Turkey is a gateway to the regional countries in the Balkans, Black Sea countries, Caucasians, as well as the Middle Asian Turkic states. This is true for all players in the value chain. For example, the network operator Turkcell has other GSM licences in the neighbouring and related countries such as Moldova, Georgia, Kazakhstan, etc.

Low penetration rate of the wireline Internet (mainly access from PCs) could be an advantage for the country. That is because the European and American users, that are accustomed to the benefits and glory of the Internet have big expectations from the mobile Internet and are likely to feel disappointed when they use these services. However, even e-mail could be a striking service for Turkish users, which are not already familiar with it. Services such as online payment and stock purchases could become more widespread between Turkish mobile Internet users as they do not have an alternative medium such as their PCs.

The significant level of GSM penetration of the market could also be considered as an advantage. People who are already familiar with the benefits of mobility could shift to even more sophisticated services and products offered on the new platform.

5.8.2.4 Threats

GPRS compatible terminals and other new generation handsets and PDAs are likely to have high costs, at least initially. These costs could act as a significant barrier to the adoption of these new terminals as the average household income is much lower than EU level of average household income.

There is a strong front with members from the political arena, the media and the economy circles in Turkey that is against the privatisation of the fixed line monopoly and easing of State control and deregulation in general. This could be an obstacle or at least delay the deregulation in the market.

Turkish economy is almost certain to experience negative growth in the first half of 2001 and maybe even for a longer period. Despite the fact that the

telecommunications and Information technologies markets are expected to grow considerably even during a big slump in the economy, the cutbacks in corporate budgets and the decrease in real household incomes is likely to reduce the magnitude of this growth.

We have stated that the country has adequate amount of skilled labour in IT related fields. However, bottlenecks may occur when the mobile Internet platform takes off and growth gains pace in wireline penetration as well. This will bring about cost pressures to the industry, increasing the cost to the end users in line with it. On the other hand, that threat is a general phenomenon valid in all markets including Sweden⁸³.

We have quoted low penetration rate of wireline Internet as an opportunity above. It is at the same time a threat for the development of the market. Consumers are not accustomed to using complex data in communications although the data usage on 2nd generation mobile networks (namely, GSM) is much higher than U.S. levels and is at the same level or even higher than European levels, which are around 10% data transfer against 90% voice transfer. It has taken almost 5 years in the west to get people used to using online services instead of or in line with conventional services. For example, to make people use e-mail instead of going to the post office at the corner has been a real challenge in many countries. It might be an even bigger challenge in Turkey.

We have presented the negative effects of the ‘installed base’ to the diffusion of the technological innovations⁸⁴. The considerably high level of GSM penetration in the country might be a serious obstacle in the first phases of the mobile Internet take off as people with conventional GSM handsets will be reluctant to switch to new generation terminals. One relieving factor is the rather short renewal times for the mobile terminals. Even then, this installed

⁸³ We have heard about the scarcity of skilled labour in these fields from many professionals in the industry both in Sweden and in Turkey. Mikael Stenhamn of ICtech ironically quotes “Everybody is an entrepreneur today. It is very hard to find people to employ. Everybody has his own business idea and wants to work for himself.”

⁸⁴ See section 5.10.2.1

base effect will be an obstacle in the initial phases of this transition from 2nd generation to new technologies.

Summary

Now, we have the suitable knowledge basis to presume the general trends and norms that will emerge in the Turkish market for MI technology. In accordance with our findings from this chapter, we will continue with the analysis of our case company to judge whether the company is eligible to cope with the current and future conditions of the national market.

6. INTERNAL ANALYSIS

This chapter is a presentation of Ericsson's operations in Turkey. The main purpose of this part is to identify the position of the company within the Turkish telecom market.

6.1 Ericsson Turkey

Ericsson has had operations in the Turkish market since 1890s, however the existence of the company with an organization in this market begins in 1986 with the establishment of Ericsson Telekomunikasyon A.S (ETAS). Ericsson has made important contributions in the development of mobile telecommunication within the country since 1993. Ericsson Turkey was one of the founding members and today the sole supplier of Turkcell, market's leading mobile operator.

Today, Ericsson Turkey functions as a total solution provider by offering solutions in infrastructure, corporate communications and the products for the end users. The company is not only a market leader in most of the business segments, but also a market maker for the emerging markets, such as mobile Internet.

Turkey has been the fourth largest market for Ericsson by taking up 5% of the total sales in the overall world markets. In the beginning, the demand from the domestic market was on the high end products. This has resulted in making Turkey one of the few markets where the company managed to stay profitable in consumer products segment. However, lately there has been a shift in demand towards cheaper low-end products and this has largely eroded profitability.

The role of Ericsson is significant in the establishment and development stages of WAP technology in Turkey. With the 'Crea-World' investment, the company has performed an important step to achieve first mover advantage in this new telecommunications technology. We find it important to mention

briefly about Crea-World in order to emphasize the role of Ericsson in the development of next generation technologies.

6.2 Crea-World: A Kick-Starter for Mobile Internet in Turkey⁸⁵

Crea-World is a greenhouse, established by Ericsson Turkey in Istanbul. It will serve as a development base for mobile Internet applications by gathering together all application developers, content and service providers, network operators and all corporate and individual entrepreneurs that have understood the business potential of mobile Internet services for users of mobile phones and terminals.

Crea-World has already partnerships with Turkcell, market's leading mobile operator, Super Online, Turkey and Europe's leading ISP for individual customer solutions and several hardware and software suppliers including Microsoft, IBM, Cisco Systems, Compaq and Oracle.

Establishing such a greenhouse, Ericsson Turkey aims to ease and speed up the mobile Internet take off in Turkey by supporting the partners with the following offerings:

- Technical resources and environment for developers to use while they are designing and developing wireless applications.
- Technical support services to assist developers with problems encountered during the development process.
- Test facilities to let developers test their applications in a realistic wireless environment.
- Local training, covering a broad range of topics about Ericsson products, development tools and wireless technology.
- Conferences and several events about a variety of subjects regarding wireless technologies.

⁸⁵ This section is derived largely by using Crea World Business Plan, 2000

- Not only technical support but also business support will be provided to guide and assist developers in the marketing, promotion and distribution of their applications.

Crea-World will play a critical role in the fulfilment of Ericsson Turkey's business strategy, which is about being the market leader through the whole customer value chain. It is expected that as an outcome of Crea-World, airtime consumption in Ericsson supplied mobile networks will be increased, which will help the sales of Ericsson mobile network infrastructure. Besides, a dominant market share will be achieved for Ericsson platforms, products and services in mobile Internet area.

6.2.1 Crea-World Strategy

The main business strategy of Crea-World can be described as providing and managing a physical and virtual environment where a full range of Ericsson facilities could be utilized by developers. These facilities cover technical and business support, suitable and motivating physical environment and development platforms where developers are able to test their applications.

Crea-World gives an additional importance for the sectors such as bank and finance, travel and transport, media and entertainment together with the retail market, considering that these will be the key sectors where m-commerce will begin to generate revenues.

6.2.2 The impact of Crea-World on the Turkish Mobile Internet Market

We believe that Crea-World will shoulder a vital responsibility in this establishment stage of mobile Internet. Here, it is appropriate to raise the main barriers in the development process of the market in order to clarify the precious role of this greenhouse.

We have cited too insufficient Turkish content levels as one of the barriers for the Internet penetration rate growth in Turkey. The same barrier is also valid

during the development process of mobile Internet. It is believed that there is sufficient supply of content providers in the market, however the main problem is that these providers should be technically and financially assisted in order to launch their services efficiently. In this point, Crea-World plays a vital role to provide technical assistance and ease the procedure to obtain financial assistance for the projects that are developed within Crea-World organization.

The existence of such an organization will not only encourage the individual and corporate entrepreneurs but it will also alter the approaches of the financial institutions, which are currently less willing to invest in the new economy.

We have distinguished Ericsson Turkey as an exclusive player in the market after presenting its contributions for the market in the development of new technologies. Now we will go deeper into the organization by observing and analysing their resources and capabilities with the comparisons to its major competitors.

6.3 The Resource Structure of Ericsson Turkey

6.3.1 Tangible resources

In this section, we will have a brief look at the tangible resources of the company and try to present an evaluation on company's financial and physical resources.

6.3.1.1 Financial resources

Turkey is one of the most important market areas for Ericsson. This importance has increased during 2000 as the results of the third quarter reveal that 5% of total orders and sales came from Turkey, which equals a total sales level of around \$ 1 billion. With the current sales figures and heavy investments for market development, Ericsson Turkey tries to attain the long-term corporate financial targets. The global strategy for Ericsson is to grow faster than the market, which means that increasing sales by more than 20 percent annually, a

return on capital employed of 20-25 percent, and an operating margin of at least 10 percent⁸⁶.

6.3.1.2 Physical resources

Physical resources are important criteria to analyse the market positions and strategies of the manufacturing companies, since they are the most essential determinants of the production capacity and revenue structure of the company.

The operations of Ericsson in Turkey can be defined within the borders of providing products and services both in handset and the network market. The company should be evaluated as a service provider and consultant company rather than a manufacturing company. Therefore, we find the physical resources of a secondary importance level for Ericsson Turkey's case and assume that it is more necessary to analyse other resources that have significant direct contributions in the company's strategies.

6.3.2 Intangible resources

We will question company's resources that are related to technology, reputation and culture under intangible resources.

6.3.2.1 Technological resources

The distinguishing characteristic of emerging industries, which are in the introductory and growth phases of their life cycle, such as mobile Internet is the central role that technology plays in competition⁸⁷.

Ericsson gives an additional importance to 3G mobile communication systems, believing that the greatest market opportunities for mobile systems and terminals will be in the GSM and UMTS areas, which are the most widespread standards. These standards are said to be Ericsson's key areas for mobile Internet. CDMA (Code Division Multiple Access) and TDMA (Time Division

⁸⁶ Ericsson Interim Report, Nine months ended September 30, 2000 (October 20, 2000)

⁸⁷ Grant (1998)

Multiple Access) will be refocused to support Ericsson's mobile systems customers. Although the profit-generating branch of the business is the network, Ericsson confirms that mobile phone market is a rather attractive business in its own right, and at the same time, an important competitive advantage for the mobile systems business.

Strategic alliances are also vital for the business. New technologies established as outcomes of these alliances will provide immense financial and technical resources for their partners. Bluetooth Special Interest Group is one of them, which is established to develop Bluetooth technology; a wireless technology that will reshape the personal connectivity market by providing freedom from wired connections. As mentioned before, it is a specification low-cost radio solution that is providing links between mobile computers, mobile phones and other portable handheld devices, and connectivity to the Internet.

Providing low cost GPRS investment models for the GSM network operators is also a crucial technological asset for the company. As we have earlier explained Motorola's GPRS-ready GSM networks, Ericsson also offers a similar product for the operators willing to upgrade their network for the 3G technologies. The GPRS support nodes, serving GPRS support node (SGSN) and the gateway GPRS support node (GGSN) enables the upgrade of the GSM networks into GPRS, but different from Motorola's GPRS-ready GSM network, GPRS support nodes could also be used to upgrade GPRS networks into UMTS or TDMA system.

When analysing the technological resources of Ericsson Turkey for mobile Internet development, we relied on Grant's (1998) three characteristics of emerging industries: Knowledge creation, invention and innovation. In this framework, invention is described as the creation of new products and processes through the development of new knowledge or, more typically, from new combinations of existing knowledge. Innovation is the initial commercialisation of the innovation by producing and marketing a new good or service or using a new method of production. As the innovation occurs, if it is successful, it becomes diffused: on the demand side, through customers purchasing the good or service; on the supply side through imitation by

competitors. Diffusion process is critical for Ericsson Turkey, since the basic role of the company is to achieve acceptance for the new technologies launched by Ericsson Global. On the other hand, there is also another diffusion concern that Ericsson Turkey has a leading role in the establishment of new technologies in the market and other competitors could use these facilities. Therefore, the second diffusion concern is about the question of how Ericsson Turkey can retain the fruits of its investments within the organization.

As Ericsson Turkey is not a manufacturing company, we will handle these mentioned criteria by considering the company as a service provider. Quick decision making processes is one of the competitive advantages of the company, which enables shortening the processes to turn inventions into innovations. Intra organization communicational skills and successful adaptation of teamwork are the key determinants behind this competitive advantage. We find this aspect a vital asset, since the technology is growing remarkably fast to cope with it. Besides, the company's strength in invention and innovation processes, as a result of being a market maker, the company has always the potential to come out with new ideas that have significant roles in market and product development. Remotely Controlled Switching Unit Upgrade System is just one of the examples that we can give from the earlier projects that have been successfully implemented by Ericsson Turkey. The system enables the mobile operators to upgrade all their switching units spontaneously and in the shortest time that has been performed until now.

6.3.2.2 Reputation

While handling reputation, we focus on brand recognition of Ericsson in Turkey, together with the fact of whether there is a price premium on Ericsson products over the competing brands. Additionally, the potential of the products to create customer satisfaction with the level and consistency of company performance is the other major determinant to evaluate how reputable the company is in Turkish telecom market.

Ericsson is not only the market leader, but also a market maker in Turkey. Therefore, Ericsson has always been the leading brand to be recognized by the

consumers in telecom industry. However, considering the terminals, Ericsson does not utilize this advantage in terms of product prices. In contrast to its closest competitor Nokia, Ericsson prefers to sell cellular devices with relatively low prices and the company has also plans to shift the production plants to low labour cost plants, which will enable the company to increase the profit margin while keeping the prices of the products stable or lower.

This strategy is rather controversial, however we believe that Ericsson's strategy has made remarkable contributions to enlarging their customer base. Considering the general norms of the Turkish customers, price has an important impact on the decision process during purchasing. It is rather pragmatic for the Turkish customers to prefer a brand, which offers more or less the same benefits as another brand, but at a lower price.

Ericsson Turkey differentiates itself from its closest competitors by providing total solutions in all the business areas of mobile telecommunication and as a result of this approach; the company manages to be the market leader in both handsets and the network market. Compared with the competitors, the company's strategy is rather unique where it initially invests in the infrastructure and establishes the development base for the market, then tries to market the terminals and network equipment after assuring that the system operates appropriately.

When we make a comparison with the other vendors in the market, it is observed that the major competitors are mainly in the market in order to launch their latest wireless devices and there is not any specific contribution or investment for the wireless infrastructure. Being one of the earliest players, Ericsson has a pure opportunity to create first mover advantage in many emerging business areas in Turkey's telecommunication industry.

6.3.2.3 Culture

The most common problem encountered in the multinational companies is the clash between the corporate culture of the company and the national culture of the domestic market. It is not possible for the corporate culture to defeat the

national culture within short-term, however the harmonizing of these two cultures should be essential rather than putting one against the other.

Ericsson's corporate culture has in part been characterized by people's desire and ability to create their own solutions their own way⁸⁸. However, the shareholder value is also essential. Therefore, this strategy is acceptable and ideal for the personal development of each member of the organization, as long as the corporate goals are achieved. Besides, these solutions should be well evaluated in order to meet the market requirements. Ericsson Turkey can be accepted as successful in balancing these two cultures. The company implements the corporate culture within the organization, giving every single employee the opportunity to contribute in overall business, but on the other hand the company is also very successful in implementing the national culture for their external relations with the government and the corporate customers.

6.3.3 Human resources

6.3.3.1 Specialized skills and knowledge

Individuals' skills and capabilities can be assessed from their job performance, their experience and from their qualifications. However, these are only indicators of the individuals' potential. The problems of recognizing people's abilities are intensified by the fact that people work together in teams where it is difficult to observe directly the contribution of the individual to overall corporate performance. As a result, firms tend to resort to indirect approaches to assessing performance, such as hours spent at the office, enthusiasm, professional appearance, and attitudes.

Therefore, considering that Ericsson Turkey is to develop in this new market, it has to adjust to the new environmental conditions, and to exploit new opportunities, then it must have knowledge not only of how its employees

⁸⁸ Björn Boström (1999)

performed in their past jobs but also of their range of skills and abilities. In recent years, many companies have initiated broadly based, detailed and systematic appraisals of the employees' knowledge, skills, attitudes and behaviour. The major criteria in these appraisals were achieving objectives, problem solving, interacting with the others and teamwork performance.

6.3.3.2 Communication and Interactive Abilities

Increasingly, firms are recognizing that in evaluating their human resources it is not just individuals' expertise and knowledge that counts but also the ability of the employees to work effectively together. Organizational capability depends not just upon the resources that are brought together but also upon the company's ability to integrate the various resources.

6.3.3.3 Motivation

Several determinants have serious impacts on the level of individuals' motivation. Core and side benefits obtained by working in that company are the basic subjects for the level of motivation. Beside these benefits, we should also indicate the condition of the working environment. In an environment where each individual can have the chance to reveal and extend its potential will certainly be more motivating than a centralized strictly managed organizational environment.

As a result of its corporate culture, Ericsson Turkey gives each of its individual members the chance to participate the ongoing processes whether the task is directly or indirectly related to that specific individual or not. Decentralized organizational structure is the leading driving force behind this attitude. It is stated during our interviews that, Ericsson's popular slogan of "Make Yourself Heard" has been publicized in Turkey after the phrase had been translated to Turkish and Ericsson Turkey did not have to negotiate with the headquarters for this decision.

6.4 Ericsson Turkey's Strategy

The company's main goal is to provide total solutions in each phase of the customer value chain. As we have studied the corporate capabilities of the company, Ericsson Turkey is rather successful in the fulfilment of this strategy. In fact, we find this strategy as the essential path to be followed, since the market is following the initial stages of development phase. Therefore, each equipment vendor that is trying to achieve a market share should come out with the abilities to respond to problems in every business area within the industry.

Ericsson's market leader position does not only stem from their being the first in the market but also their heavy investments from the infrastructure to the end users. The company has an unquestionable position in the networks as being Turkcell's sole equipment supplier and Ericsson's additional interest in 3G technologies will reinforce this relation, since Turkcell is also willing to invest to upgrade its current network for the next generation mobile technologies.

Ericsson has also been dominant market leader in the cellular devices during the previous years with a market share of 50%. However, this was not a typical market share when it is compared with the mature markets. This share has gone down to 30% recently, which had also been expected by the company management. On the other hand, the market share of Nokia, the closest competitor, has increased to 35% leaving Ericsson behind. It is generally affirmed that the reason behind Nokia's success in terminal market is their recent developments in the design of their products, where the cellular phones became more appealing to the end customers. On the other hand, Ericsson still provides cellular devices that are technically functional but at the same time lack the aesthetic features in a secondary importance level.

Handset market is not the profit generating area for the manufacturers, but this does not mean that they have a minor importance. First of all, the manufacturers will not be able to sell network equipment as long as they cannot sell any devices or vice versa. In addition, devices are important for the manufacturers' market values, which are presented to the end customers and

market value will certainly affect the network business. Market share and brand appreciation for Nokia in Turkey has increased recently and exceeded Ericsson's. We find this as a result of Ericsson's corporate strategy, which is about giving more importance to network market and delegating the device market to the independent distributors. However the headquarters states that they will shift the production plans to low cost areas and doing this, the company will be able to increase the profit margin up to 10%. This strategy will have a direct impact on the terminal prices and Ericsson should benefit from scale economies, therefore an additional importance should be given for the cellular devices beside the network market.

Nokia has managed to whip some market share from Ericsson by successful marketing campaigns and a well-structured market segmentation strategy. Although Nokia devices are not price competitive when compared to Ericsson models, the company managed to increase sales and grab around 20% of market share from Ericsson. Now, Ericsson should find the answer to the question of why this 20% of the customer portfolio has shifted to Nokia products and find out what was appealing in those terminals that do not exist in Ericsson products. These are critical issues to be discovered, because we see the devices as the most efficient advertising tools for a manufacturing company although they have considerably low profit margins compared to network business.

6.5 Organizational Capabilities

Organizational capabilities have an additional importance in the case of Ericsson Turkey, because new market development requires the integration of a wide diversity of specialized knowledge and skills. Grant (1998) highlights the creation of cross-functional product development teams as a solution for this issue. The most difficult problem in this point is the team's ability to access the breadth and depth of functional knowledge relevant to the product and then integrating that knowledge.

Considering that Ericsson Turkey is not a manufacturing company, these capabilities should come out in functional areas such as corporate management, management information, marketing, sales and distribution.

The major capabilities for corporate management can be mentioned as effective financial control system, expertise in strategic control of diversified corporation, effectiveness in motivating and coordinating divisional and business-unit management. Comprehensive and effective MIS network, with strong central coordination is the chief capability that is expected in management information. Marketing on the other hand, needs good brand management and promotion while promoting and exploiting reputation for quality and quick responsiveness to market trends, especially in these initial stages of the mobile Internet development. Performing services effectively with the adequate offerings is the essential capability for sales and distribution function. Effectiveness in promoting and executing sales, efficiency and speed of distribution with the quality and effectiveness of customer service are needed for a successful sales and distribution function. However, Ericsson Turkey is not directly involved in this functional area regarding the handset market. The company prefers to outsource this function by delegating it to other private distributors in the market, generating around \$ 200 million total handset sales.

Still, there is a problem in assessing these capabilities in the mentioned functional areas. Ericsson Turkey is unquestionably the market leader in these functional areas. However, these criteria are also a reference for the future performance and objectivity are essential in order to evaluate these capabilities properly. Therefore, Ericsson Turkey should not limit its evaluation of capabilities with reference to the domestic market environment conditions. The company should also compare its strategy and achievements with its closest competitors' capabilities in other market areas, developed markets in particular. As the telecom monopoly is liberalized in Turkey, the speed of change will be implausible and the domestic market will be able to catch up with the developed markets. Then, the current market conditions are expected to change abruptly.

The fact of being the market leader and having several competitive advantages over its competitors should not mislead Ericsson Turkey, since sustaining the competitive advantage is essential rather than gaining it. Together with all the other equipment vendors, Ericsson is in the market mainly to sell and distribute its terminals and network equipment. Therefore, Ericsson Turkey tries to achieve a competitive edge by providing total solutions for its customers. Without any doubt, this advantage is valuable for the company in this phase of the market, however its sustainability is questionable. First, the company is operating in a technology intensive market where the speed of change shortens the duration of any specific competitive advantage related to product or service offered. In addition, in today's market conditions, technology is exploited by each player to an utmost extent, where the chances for innovation are more or less the same for each vendor. Therefore, Ericsson Turkey should not be hesitant in bringing the new standards to Turkish market as they are newly launched in developed markets. It has always been discussed that investment in new generation mobile communication will be an early action in Turkey since the first launch of WAP technology. We believe that the technology intensive market does not accept a term such as "early investment", in countries similar to Turkey, the conditions could change unexpectedly and rapidly. Therefore, waiting for the development of the technical infrastructure can easily drive the vendors to failure.

Bringing the new technologies to the market before the other competitors will certainly not be the sole driver to sustain the competitive advantage of being the first mover in the market. We should highlight three important key organizational capabilities of Ericsson Turkey in order to see their contribution to sustain and develop their current advantages.

Corporate communication is the first organizational skill to be mentioned. Both intra and inter organizational capabilities are the most important determinants to achieve acceptance from different players in the industry. The multinationals should know how to make business and establish relations in each market they operate and methods to gain success differ from country to country. A close relation with the government is essential in Turkey where the telecom market is still state dominated.

A well-established team is another asset of the company, where there is always one to replace the other in the cases needed and the team works in an ideal harmony, which creates a suitable base to develop the services provided for the customers. Members of the organization have also important technical and managerial potential, which help the company during the innovation process. Ericsson Turkey is able to understand the major needs of the domestic market and launch the possible solutions in the shortest period possible.

As a third critical skill, we can point to the capability of quick decision-making and implementation. The significant short periods for decision-making in Ericsson Turkey are the unique examples within Ericsson's global network. It is also stated during our interviews that Ericsson Turkey could sometimes finalize the decision making process for some critical issues in a shorter time than headquarters does.

We find these capabilities important to sustain the advantages in Turkish telecom market. However, as we have mentioned earlier, these capabilities can easily be replicated by the competitors. Therefore, Ericsson Turkey should be able to provide a new competitive base to differentiate itself from the competitors. Unfortunately, the possible solutions are rather limited, since the technological development and research is not the core business area for Ericsson Turkey. For this reason, the company should be able to differentiate itself as a service provider by making it harder for its clients to shift their operations to another competitor. Increasing the value provided for the customer, cost of shifting from one supplier to another and providing side benefits for the customers will play the major role in sustaining and expanding the customer portfolio.

Summary

Concluding the industry analysis for the company, we are able to define the major strengths and weaknesses of the company. We also raised the important issues to be concerned about regarding the resources and capabilities from a 'service provider company' viewpoint. The observations from this chapter will establish an important base for the following recommendations part.

7. HOW ERICSSON SHOULD ACT

In this chapter, we summarize our findings from the industry analysis (Chapter4), specific market analysis (Chapter5), and the internal analysis of the case company. We use the critical issues grid to do that. This grid determines the issues to be addressed in the diffusion process of mobile Internet in any given market with special emphasis on the emerging country markets. In the parts that follow, we present managerial implications for our case company Ericsson. We will start by looking at what we have done so far.

7.1 Summary of Our Analysis

In chapter 4, we have analysed the mobile Internet industry in general. We have defined the industry, the main actors of the value chain and the trends. The following chapter dealt with the Turkish market, which we have selected to highlight the challenges and opportunities of a technological innovation, the introduction of a radically new product in an emerging economy. We have analysed the market from both a macro environment and business environment point of view. This chapter concludes with a comparative analysis of the diffusion process in developed and developing economies. Chapter 6 is mainly about our case company Ericsson Turkey. In this chapter, we try to pinpoint the strengths and weaknesses of the company. At this point, it is time for the managerial implications that will be based on our previous analysis.

7.2 The Critical Issues Grid for Mobile Internet

We have already discussed the theoretical aspects of this grid and how it should be interpreted in chapter 2. We will use this grid to analyse the different environments in which Ericsson operates. We take into account **five basic environmental forces** that are particularly significant: Political, Behavioural, Economic, Social and Technological.

We will deal with each of these five forces separately on three different levels: company, industry, and infrastructure. At this point, we should note that we have tried to determine all the issues that should be addressed by the stakeholders involved in the industry. However, we will not suggest a managerial implication for each one of them. There are mainly two reasons for that.

First, Ericsson Turkey, as a private company aiming at profit maximization, need not or could not deal with each of these issues. Some of the challenges highlighted are beyond the reach of a subsidiary company. For example, the need for user-friendly devices is a matter that should be dealt with by the company as a whole not by a single subsidiary. Some other issues are so broad and deep that they could only be addressed by national / International authorities or by industry associations.

Second, there are limitations to the scope of this study and we cannot take in hand all. We have to draw a line somewhere and in that case, the boundaries are limited by the extent of Ericsson Turkey's capabilities.

We follow the following structure in this chapter. First, we present a grid listing the critical issues to be addressed. Then we quote our findings that are the results of our analysis of the empirical data. Finally, we form the managerial implication that stems from our findings.

7.2.1 Political issues

We have noted the significance of a central decision maker in the diffusion process of a technological innovation with network externalities. This is certainly valid for the adoption of mobile Internet. Most of the time this central decision making body is a political institution or is driven by one.

In this respect, Ericsson has to manage its network of relationships in a way to optimise the adoption process.

Table 7.1 Political issues Grid

	Company	Industry (Business Ecosystem/Value Networks)	Infrastructure
Political	<ul style="list-style-type: none"> • Law requirements <ol style="list-style-type: none"> 1. The restructuring of the sharing procedure of the network operator income by the telecom monopoly, which currently blocks the development of the mobile services such as m-commerce.⁸⁹ 2. Introduction of venture capital legislation. 	<ul style="list-style-type: none"> ▪ Deregulation and privatisation in the industry. ▪ Incentives that would accelerate the diffusion process, such as tax reductions, exemption in value added tax in m-commerce transactions, etc. 	

Finding #1: There are significant gaps and obstacles in the legislation that would delay the adoption of mobile Internet. These are valid in the income distribution measures of the network operators, taxation procedures and in the legislation that regulates the placements of credits by the financial institutions, especially concerning venture capital placements. Government requirements are affected by lobbying (constituents, corporate lobbying), global regulations and domestic regulation (regional and national laws). The likelihood of subsidies and incentives are other crucial points.

Implication #1: Ericsson should act actively in order to initiate a pressure group of the players in the industry to force the political bodies and the bureaucracy to implement the necessary changes. This is something Ericsson cannot and should not do alone. However, Ericsson - being the leader of the mobile communications market in Turkey- can lead or initiate a movement. The close ties with the biggest operator Turkcell and the new coming licensee Istim puts Ericsson in a strong position to coordinate such initiatives.

7.2.2 Behavioural issues

Behavioural aspects of an introduction of a radically new product are hard to estimate accurately in advance. The consumer demand for a particular product is in general influenced by clusters of issues concerning (1) **education and information** (public education, company marketing and promotions, and Consumer Report support, etc.), the (2) **value proposition** (safety,

⁸⁹ See Chapter 5

performance, aesthetics, and total cost of ownership), and (3) **social acceptance** (age range acceptance, driving pattern changes, human interaction changes, and trendiness of mobile Internet). The first two will be dealt in this section while the social aspects are addressed later.

Table 7.2 The Behavioural issues grid

	Company	Industry (Business Ecosystem/ Value Networks)	Infrastructure
Behavioural (how people interact w/ product)	<ul style="list-style-type: none"> ▪ Can cellular devices serve as PCs to access the Internet or should they coexist? ▪ Will MI perform access speed at a level of satisfaction to end-users? ▪ Availability of compatible terminals and acceptability of terminal cost/performance ▪ Appropriate user interface that provides ease of usage. 	<ul style="list-style-type: none"> ▪ Are other means of accessing the Internet as low cost and convenient? ▪ Will industry convince the users of security and reliability of mobile Internet (MI)? 	<ul style="list-style-type: none"> ▪ Will MI change communication and shopping patterns? ▪ What role will stakeholders have in promoting product acceptance? ▪ What public education will be developed to promote acceptance of products and shift from voice communication to data communication?

Finding #2: Data handling ability of average Turkish consumer in communications is rather limited. This is mainly due to late and partial adoption of wireline Internet that has still not reached a sufficient level.

Implication #2: That problem is eminent not just in Turkey but also in other emerging economy markets. One of the most important challenges of equipment vendors such as Ericsson will be to develop user-friendly devices. The most effective solution to this problem is likely to be advanced voice-recognition technologies. The scope of this problem is beyond Ericsson Turkey’s capabilities. However, an initiative to be launched along with other industry leaders could stimulate the concerned decision making bodies. This in return could start a shift towards an education system that is more information technologies oriented. The short-term solution is obviously a simpler and user friendly interface on the terminal side.

Finding #3: ‘Wireline Internet’ penetration is not likely to reach impressive heights in the mid-run although the nominal growth rate is large, as it is coming from a low base. This means the mobile Internet has to ‘take off alone’ in

Turkey (contrary to developed markets that enjoy above 50% internet penetration rates) without the help of a complementary partner such as home PCs.

Implication #3: As mentioned before, this could be a threat as well as an opportunity for the diffusion process. As the Internet is not very well known the average user will not have great expectations from mobile Internet applications, which deliver limited services at this initial stage. This means very basic services such as online stock purchases, e-mail, corporate mobile e-mail, news coverage, etc. could be radically new and thus very attractive for average users. Ericsson already has a number of solutions for mobile services. The company has also formed alliances (also ownership relations) with key content providers such as Popwire⁹⁰. The challenge for Ericsson Turkey is to transfer the benefits of these alliances to the Turkish consumers. This requires close cooperation with the headquarters and getting actively involved in Ericsson's global joint venture and alliance strategy. Continuously informing the application developers and content providers within the frame of an aggressive marketing policy towards these companies that are to generate the next generation mobile products and services (such as stock brokers, banks, news content providers, etc.) is crucial for Ericsson.

7.2.3 Economic issues

Economic factors are likely to be the most important but also the hardest to handle in the diffusion process of mobile Internet. That is not only because of the chronic macro economic instability that is specific to in Turkey but also because of the general lack of venture funding in developing economies, especially in hi-tech sectors that require long-term commitment. The business models for the mobile Internet platform are not clearly defined yet and there is an anxiety about the telecommunication sector among investors, particularly about the 3G networks to be deployed and the license fees to be paid.

⁹⁰ An online entertainment broadcaster, <http://www.popwire.com/>

Table 7.3 Economic issues grid

	Company	Industry (Business Ecosystem/ Value Networks)	Infrastructure
Economic	<ul style="list-style-type: none"> ▪ How can scale economies be created and what is the break-even cost for the new technology for different clusters in the value chain? 	<ul style="list-style-type: none"> ▪ Will network operators offer reasonable fees for the services? ▪ Will it be possible to access adequate financing options for the industry players? 	<ul style="list-style-type: none"> ▪ Will incentives be given in order to ease the barriers to entry for the industry? ▪ Will the new technologies to be used offer cost advantages?

Finding #4: The weak structure of the financial sector and the shallow capital markets make financing a challenge for the start-up companies. Now the large conglomerates are attempting to finance their spin-offs with own resources but the sustainability of such a policy is suspicious to us. It is exceptionally hard for application developers and content providers to get initial stage financing. Although some of the professionals were optimistic about the possibilities, when we compare the situation with Sweden, the problems become obvious.

Implication #4: Ericsson has already initiated alliances with a variety of companies to launch venture capital funds for specific regions, i.e. Latin America and South East Asia. Ericsson Turkey should also negotiate with the holding company for the allocation of at least a fraction of these funds to the Turkish companies developing applications and content for the mobile Internet. We have already discussed the importance of network externalities in this sector. Thus, it is vital for Ericsson to support the mobile Internet community in terms of both management and technical backing and finance. In that respect, Crea-World is a good step forward but it is not enough. Ericsson could also manage to attract other funds to the country and convince them to invest, using its sound corporate identity. There is already an organic connection between Ericsson and major funds such as Investor AB, which could help these efforts. To achieve these, effective communication with the holding company on these issues is necessary.

Findings #5: The cost of access will be an important determinant in crossing the ‘Chasm’. Turkey is a relatively low-income country when compared to EU,

U.S. and Japan. The price of the terminals and the access fees charged by the network operators should not be too high to scare away the end user. That is only possible if the government grants tax exemptions for the access fees.

Implication #5: It seems very unlikely that the government will be able to cut any tax rates given the conditions of the stand-by agreement with IMF. However, Turkey desperately needs the benefits of the Internet and is already well behind Western Europe. At least in the initial stages of the deployment of this new platform, some encouragement by the public authorities is crucial. Thus, lobbying in the appropriate bodies is necessary for the Industry and for Ericsson for such a move by the government.

Finding #6: Many Turkish companies are striving to increase the productivity as the currency pressures are climbing. Although the rocketing real interest rates have cut back corporate spending for the last couple of years, if the value proposition and the benefits of mobile Internet can be communicated well, there is a great opportunity.

Implication #6: The network operators as well as the final users should be educated about the benefits of this new platform and the opportunities it offers. A team of consultants could be assigned just for this task. This kind of special care is particularly vital for small and medium sized companies (SMEs). We have recognized that the network operators are very busy with growth, as the market has not reached maturity yet. Thus, they have difficulties in keeping up with the diverse demands of different customer segments and providing them with the customized services and products. Ericsson should play a more active role in persuading them in this direction.

7.2.4 Social issues

Turkey has a young generation, which has a certain interest in hi-tech products and new technologies (Although not comparable to their counterparts in Japan or Finland). Large cities exist. Mobility and being outdoors is a life style, which is partly attributable to the climate.

Table 7.4. Social issues grid

	Company	Industry (Business Ecosystem/ Value Networks)	Infrastructure
Social	<ul style="list-style-type: none"> ▪ Will MI be widely accepted by people (network externalities)? ▪ Will people use MI for same purpose as previously using competing/complementary technologies? 	<ul style="list-style-type: none"> ▪ Will phenomenon of daily life speed up acceptance of MI? 	<ul style="list-style-type: none"> ▪ Do demographics or living trends favour the use of MI?

Finding #7: Demographics and living trends in Turkey favour the use of Mobile Internet.

Implication #7: Ericsson already has a global strategy of focusing on the young generations and relying on them for the quick spread of new technologies. This should be kept and further developed

7.2.5 Technological issues

The technological challenges faced by equipment vendors in terms of developing the right products for the mobile Internet and delivering them in time does not concern Ericsson Turkey to a large extent, as the R&D functions of the company are rather limited in Turkey.

Table 7.5. Technological issues grid

	Company	Industry (Business Ecosystem/ Value Networks)	Infrastructure
Technological	<ul style="list-style-type: none"> ▪ Will necessary technology be launched to provide security? ▪ Can batteries be developed to support a larger variety of tasks shouldered by the devices? 	<ul style="list-style-type: none"> ▪ Will standardization of software and hardware occur? ▪ Will partnerships occur with the other players in the value chain? ▪ How quickly will the rollout of new generation technologies, such as GPRS and EDGE take place? ▪ Will it be possible to find enough skilled labour to develop the necessary applications and content to support the diffusion process? 	<ul style="list-style-type: none"> ▪ Will the operators be able to provide sufficient coverage?

Finding #8: The labour market is already tightening in the face of increasing demand from the industry. In the middle run, the lack of skilled labour could be a serious bottleneck for the industry, which could hamper the generation of necessary applications and content.

Implication #8: Crea-World will be a good stimulus in encouraging people with technical background to gain the competencies the mobile Internet platform demands. However, this problem should be dealt with on a macro level. An industry wide initiative is needed to form an effective strategy that would convince the authorities for a change towards a more IT oriented education policy.

Finding #9: A global key success factor in the industry is to simultaneously match the network abilities and the terminals, the content and applications that go with it.

Implication #9: This calls for close cooperation with all the actors in the industry, just as NTT DoCoMo did when launching the i-mode. DoCoMo has established close cooperation with all the equipment vendors, particularly the terminal vendors and content providers from the very beginning of the launch of its services. To learn what happens when one fails to do so, it could be a good idea to check the disappointment of the broadband companies in Sweden, which have managed only one tenth of the number of subscribers they expected to sign up in 2000. If the value proposition is not complete and there is a missing part in the value chain, the diffusion of a new product is likely to be rather painful, especially when there are strong network externalities.

7.3 Some Factors Affecting User Demand for Technology

We have discussed the critical issues to be addressed, our findings and the managerial implications that match with those. At this point, we would like to sum up these briefly. Since mobile Internet establishes advanced direct connections, the degree to which opportunities for more efficient interaction are leveraged depends on the motivation of people and businesses to join this new platform. A strong driver of demand for individual people and businesses is the

network externality. On the user side, the presence of and access to others motivates demand. On the business (vendor side), the more vendors that are present the more presence becomes a necessity of doing business. As the user or vendor base increases, this effect could dampen due to congestion. For the network externalities to be realized, access to mobile Internet should be **affordable, reliable, instantly available, secure, simple, and widespread**.

The importance of reaching a favourable price-performance ratio for acquiring new users is clear and needs little elaboration here. Demand of digital products and services requires a sense of a secure environment. A fear of the digital age, often fuelled by the media and film and television stories, still exists. Public education can demonstrate the reality of the situation. Demand can be increased by highlighting that the benefits of involvement in mobile Internet (and Internet in general), including productivity and ease of use, exceed the risks. Users entering the digital space must be clear on the trade-off of their personal data for benefits such as personalized service and better prices. Security technologies and assurances, such as guaranteed credit-card-theft coverage, will also facilitate public confidence.

Interfaces are a key enabler of successfully reaching end-users because they are the mechanism by which users operate. Device manufacturers and content creators must come up with consumer interfaces that are intuitive, simple, comfortable, and flexible. Currently, most interfaces are slow, choppy, and one directional. Digital-media applications will force the development of interfaces that seamlessly integrate content and have two-way communication for interactivity. Web browsers should also be consistent. A single browser standard would benefit both developers and end users.

Another motivating reason to purchase digital products and services similar to ones offered on the mobile Internet platform is the availability of compelling content or a powerful application, also referred to as a *killer application*. If consumers are given a reason to buy, all the supply barriers such as inadequate bandwidth will get resolved. For example, e-mail use took off rapidly because it was a compelling, powerful message. Thus, it forced everyone to figure out how to get it.

7.4 A holistic perspective is required to jump over the chasm ⁹¹

What we have observed while we were trying to gather the empirical evidence to support our study is that there is a systematic gap in the network of organizations in this evolving business ecosystem, namely the mobile Internet industry).

We have already discussed the theory of technology life cycle or the diffusion theory in section 2.7. The reader will recall that between the early adopters and the early majority lies the *chasm*. In our opinion, this evolutionary edge for the mobile Internet diffusion in Turkey is between the achievers and the materialist group⁹². The central issue is how does the industry formulate and implement the value propositions to address the needs of this group. We could not find any organization that currently facilitates this crucial transition. It is in bridging between these segments that a new organization could be established with interrelated strategic roles to play: incubator, playground, showcase, classroom, tactical-problems forum, and strategic-issues forum⁹³. Each of these roles has a virtual and physical presence. These will not be discussed here in detail.

Although there have been initiatives such as Crea-world established by Ericsson, there is no industry-wide initiative to address the issues and to perform the roles mentioned above. There is an obvious need for a scheme that gathers the convergence parties.

7.4.1 Gathering of Convergence Parties

We have already discussed the multi-dimensionality of the problem and the complexity of the solution, which requires macro level action such as shifts in education policy, radical changes in the financial institutional network, etc. These issues cannot be addressed by one actor alone, even if it is the industry leader as Ericsson is in Turkey. The overlap of disciplines created by the convergence of Internet and mobile communications and the requisite

⁹¹ We have taken advantage of some of the ideas from Cooper and Noble (1999) while forming this section.

⁹² See section 5.2.5 for a description of these groups

⁹³ These roles are further explained in Cooper and Noble (1999)

collaboration among relevant companies creates a strong incentive to assemble equipment vendors, application developers/content providers and the network operators/ISPs. Such cooperate initiatives require the close interaction of companies across these industries. The general objective of such a gathering place, whether virtual or physical, should be the advancement of mobile Internet and the facilitation of a dialogue among parties.

Assuming a physical facility is founded, it should be a place that speeds the general acceptance of new mobile products and services and that accelerates the adoption of new thought patterns and new expectations. Essentially, a 'mobile Internet empowerment centre' should both provide access to and create information. The fundamental components of the centre would consist of people, tools, and infrastructure. This centre should be a knowledge transfer centre across industries and different parties across the value chain.

The location of such a centre should be undoubtedly Istanbul. The facility should be wired for high-speed communication and be equipped with all the necessary infrastructure. The centre should be global in nature to connect local businesses and resources to other regions and global players in the industry. It should act as a meeting point for all the involved parties, for example the local start-ups and foreign venture funds. The initiative should be integrated into a worldwide development of similar centres for business and educational purposes. The centre would provide a portal to the global community to help them find partners and projects and participate in international forums. In addition, when foreign parties come to Turkey, it should stand as a facility where they can see what the country has to offer.

There are already opportunities made available for testing and collaboration for start-ups and young enthusiasts. Thus, this role for the centre is not that significant. The fundamental objective of the centre should be to encourage collaboration among the firms across the value chain. The centre should facilitate communication and cooperation among these companies by overcoming geographic, cultural, and communicative barriers. These companies have different objectives with some overlap. Collaboration initiatives would bring more cohesiveness and synergy to mobile Internet

platform. It would help nurture relationships and partnerships and provide a meeting place for planning among partners. A gathering place would create a sense of community, promote member companies, and generate new ideas. The industry would be able to act as one when lobbying with the central decision makers that are exceptionally vital in the diffusion process of the technology⁹⁴.

Such a centre would also allow companies to showcase the new products and technologies. Showcasing performs a marketing function by enticing people until the time that the product is ready so they are primed to want it. In addition, start-up companies can stimulate interest in their firm while still in development. Showcasing educates the industry on the latest technologies and research. Companies can find out how to apply new technologies to their work and how fast will they arrive. Both technology and content companies would seek to demonstrate their offering, including service, appliances, software, and creative concepts.

The organization of the centre should be agile and entrepreneurial in order to recognize and act quickly on opportunities.

A centre needs a strategic vision, not a tactical approach. It cannot be viewed as a cost centre or a short-run profit division. The objective for the centre and for each one of its members should be to cultivate the long-term potential of mobile Internet, which will in turn benefit each of its members in a manner that is mutually supportive rather than mutually exclusive. Far from a vague or altruistic goal, each partner must know upon joining what it wants to accomplish and how the objectives benefit them directly within their sphere of control, furthering their needs and their funding sources.

Ericsson as the industry leader both in terms of its global identity, its particularly strong position in the Turkish market, and its indisputable know-how and know-who superiority to other players should lead the formation of such an initiative.

⁹⁴ See sections 5.8.1 and 7.2.1 for the role of central decision makers

We believe that mobile Internet boom is inevitable in the emerging country markets as well. However, the rollout of the networks and the adoption of compatible terminals will not be effortless. No equipment vendor should expect that. There are significantly higher barriers for the diffusion of this new technology in the emerging markets when compared to developed country markets. The challenge is big and even Ericsson cannot bear it alone.

One should not forget the mistakes that were in fact a result of the lack of cooperation of the industry players and the lack of clearly defined strategies when Internet was first launched commercially in Turkey. The adoption process has been most disastrous and unsuccessful for all the companies across the value chain. This catastrophe, on the other hand, has also left out some of the historical mechanisms that can help guide and shape the adoption of mobile Internet. We hope that the issues highlighted in this report and the recommendations such as establishing a centre, a pressure group to defend and promote the industry on different platforms can help dissolve the barriers to mobile Internet diffusion.

These measures may help to accelerate the diffusion and the development of the market. However, these do not guarantee the appropriability of the returns for Ericsson. In fact, industry analysts do not favour the network operators or the equipment vendors in their forecasts of how the 'mobile Internet incomes' will be shared once the platform takes off. Even then, our main idea when starting this study was that as an equipment vendor Ericsson should be able to collect the return for its efforts. We elaborate on this issue in the following chapter.

8. CONCLUSIONS AND FUTURE RESEARCH

In this final section of our study, we present the answers to our main problem with regard to our findings. We also try to spot the relevant issues for future research studies.

8.1 General Conclusions

MAIN PROBLEM

How can a telecommunications equipment vendor successfully implement business development strategies in the rapidly growing Turkish mobile Internet market and achieve profitable growth?

In order to find an answer to our main problem, we should turn back to our sub problems that are portrayed in Chapter 2. Initially, we should highlight a final evaluation of the Turkish mobile Internet market in order to establish a base for our comparison with the developed markets from which we will get the indications about the future of the market in Turkey and therefore set up a guideline for Ericsson on its way to get the largest revenues from the market.

We have raised the various drivers and barriers for the development of MI in Turkey. When it is compared to the West European markets, it still has a long way to go to maturity. The market has lagged behind during the Internet period and now mobile Internet comes out as a saver to recover the costs of the lost opportunities coming with the Internet. Internet penetration in the country has recorded 3-4% in 2000, which is considerably low when compared to above 50% penetration rates in Nordic Europe. We studied the major reasons behind this figure. Low PC penetration rate has the most direct impact on this result and we have addressed economic, social and educational reasons behind the users' reluctance to utilize Internet services.

8.1.1 Final Evaluation of Turkish MI Market

8.1.1.1 Technological Infrastructure

Considering the less complex structure and more economical price offerings of the cellular devices, we believe that mobile Internet penetration will exceed conventional Internet penetration in the short-run. The huge gap between the mobile phone penetration rate and PC penetration rate also justifies this forecast.

Different from most of the developing countries, Turkey has a contemporary mobile communication network where two operators have already been active for 6 years and other two operators are expected to launch their services during the next year. However, this does not mean that the infrastructure is capable of responding to the potential demand in the following years. The capacity should be expanded and this is not an easy task under the current state monopoly in telecom market. The management of the wireline network and control of the wireless services have been delegated to Turk Telekom, the state owned carrier. On the other hand, within the framework of the stand-by agreement with IMF, government has committed to privatise Turk Telekom by offering 33.5% of the shares to private investors. This is a decision, which has long been awaited. With the privatisation of the carrier, Turk Telekom will have the necessary flexibility to make quick decisions and implement new ideas that will certainly have positive reflections on the technical infrastructure. The capacity shortage is expected to be solved to a remarkable extent following the conclusion of the privatisation process. However, we estimate that this will not take place before mid 2002.

8.1.1.2 Network Operators

Network operators will offer a new pace for the development of the technology, since we believe that mobile operators will be the initial players in the industry who tend to get the largest share of the revenues. Evaluating the last 6 years of the operator market, we cannot say that the market has witnessed a fully

competitive environment. The market has been dominated by two operators, which more or less provide the same services with rather similar prices. As GSM 1800 license has been delegated to a third operator (Istim). A fourth mobile operator is on the way, which will be managed by Turk Telekom. The balances in the market will change dramatically and the players will be after creating value for the end users. The challenging price offerings will not be the sole key for competitiveness. The operators have to create value for their user portfolio in addition to the desirable prices. Operators have an important asset over other players in the industry, which is customer knowledge and this asset will help them to grab the largest piece of the pie in the first days of MI. This dynamism in the operator market will certainly expand through an industry wide platform.

8.1.1.3 Equipment Vendors

Equipment vendors will shoulder an additional burden during the initial stages of MI. Offering high quality equipment at reasonable prices could no longer be a competitive advantage for the competitors. Providing total solutions for the clients by offering turnkey projects will be essential. Technology being used is getting more complex as we proceed through the product life cycle of MI. Today, a majority of the industry is discussing WAP, concentrating on several issues. Tomorrow GPRS will be a question subject with deeper discussion points and 3G technologies will be handled more precisely. As the standards progress, network operators will need more assistance and the best solution for their problems will come from the manufacturers of the technology. Considering this situation, Ericsson has an important advantage for GPRS and 3G technologies in Turkey, since the company plays the major role in the establishment of these technologies. Besides, the company has a first mover advantage where Ericsson brand is associated with a variety of applications in telecom industry. We believe that Ericsson will present a better performance in 3G technologies, since the company has already attained 44% of the emerging industry, leaving its closest competitor Nokia behind with 22% market share⁹⁵.

⁹⁵ Aftonbladet, 18 December 2000

The extent of relations with the government and Turk Telekom has been an important criterion for the success of a vendor, since the market was dominated by a state owned monopoly. This trend will survive until the telecom market is liberalized. Thus, we believe that the vendors that have close relations with the government but with clumsy operational structures are expected to lose the competition and shrink their operations to terminal markets or concentrate on other business areas they are already specialized in.

8.1.1.4 Content Providers

Content on the other hand is another hot issue of Internet and MI market in Turkey. Considering the relatively low level of English literacy in the country, the usage area of the Internet has been extremely limited, since the majority content on the net is in English. The solution of Turkish content problem is compulsory for the development of the market. MI cannot serve anything for an end user if he/she cannot understand the available content. Therefore, we expect the content providers and ISPs to spend additional effort on content extension. We believe that if content providers and ISPs fail to provide the necessary content, network operators, equipment vendors or any other player in the market will come out to establish a Turkish content base that will help development of the market. Otherwise, users will present the same reluctance as they presented towards the Internet and this will seriously hinder the market growth, which will have a direct impact on the expected revenues of these players.

8.1.2 MI in Developed Markets

Concerning our second sub problem, we observed that European markets, Nordic region in particular, have presented a remarkable progress at a rapid pace. Several countries have already given the licenses for UMTS (Universal Mobile Telecommunications System), a 3G technology that will be launched in 2001. Successful implementation of GSM, single standard for mobile communication, has played the leading role in this rapid transition process to the new technologies. Therefore, the development of MI is more observable in

Europe. Especially in Northern Europe where both the Internet and mobile phone penetration are relatively high, this new technology will advance.

Apart from the discussions about the future of MI, the market is concerned about the question of how the diffusion process of MI will take place. This situation is quite different in the case of Turkey, because authorities in the country still try to solve bureaucratic issues, infrastructure problems whereas developed markets have already enough base to establish and develop the technology, and they try to see the ways to get the most profit from the market. The common opinion about the revenue generator of the market is not different from the opinions in Turkish market. It is believed that the operators will have an important advantage in the first phase, and then this revenue will be shared by other players. We believe that a single player is not capable of getting the most out of the market by itself. Partnering and strategic alliances are the key success factors for both European and Turkish markets. Having the necessary customer knowledge could be an important asset for network operators, but ISPs on the other hand have the customer knowledge in terms of customer web traffic and equipment vendors will provide the technology and the user interface. Through the collaboration of these players, not only the prices will be lowered but also the quality of services will increase.

Another difference between Turkey and West European markets during the diffusion process is that users in West Europe feel that applications will have the greatest influence on customers' adoption processes. Price and convenience of the product have secondary importance. Majority of users in Turkey on the other hand prefer to present a price oriented behaviour or other factors come out with primary importance.

8.1.3 The Strategy for Ericsson Turkey

As a third concern, we had highlighted the question of how Ericsson can relate to the challenges of the complex situation in the Turkish market. Although infrastructure and customer base in Turkey differ widely from developed markets, the general norms and trends of the new technology are the same. The

development process in Turkey will follow the same path in the developed markets, but theoretically, Turkey will again follow this path a little behind, perhaps with a gap of 6-12 months. The market should be restructured and crucial investments should be employed for the infrastructure. It is still early to determine who will get the most from MI in Turkey, but we believe that whatever player it is, the one who invests at the right time will get the most from the market. Partnering is also essential for Turkish market. The players should leave their renowned “me, too” strategies and start to take place in the market for contribution and get the benefits of their contributions in the future.

Therefore, Ericsson should initially examine the current condition of the market and estimate the future state. Being a market maker is an important asset to attain leadership, but sustaining the leadership is the real issue. In order to sustain leadership, the company should get into strategic alliances with different companies from different business areas. Providing this, the company will enlarge its market area and raise the quality of the services provided. Integration of organizations is critical to facilitate cooperation. Digital convergence will encourage technology, communications, and merchandise companies to seek out new partnerships and alliances. Since they are expanding the scope of their domains, organizations will need to acquire new skill sets. Ensuring the integration of cultures requires planning and commitment. Outside expertise, such as consultancies, may be required to help identify acquisition and partnership targets, manage the transaction process, and integrate the organizations. Greater cooperation can be encouraged through collaboration initiatives, information sharing, and joint branding. It is crucial for cooperating organizations to achieve trust and mutual respect. Security and privacy of information exchange must be established and communicated. Large-scale cooperation may require the establishment of a leadership body. Rules and enforcement standards, which are objective and related to strategic goals, must be known and accepted by all parties. Leadership must decide how much control members will be given, whether rules will be created formally or informally, and whether compliance will be mandatory or voluntary.

Collaboration by itself will not be sufficient for the achievement of success. New forms of value-added service must be provided to differentiate Ericsson

among other suppliers. One of these services is customisation. The availability of more information about customer needs and preferences enables businesses to directly respond and organize supply around such information. As a result, tremendous power is shifted to customers. Consumer marketing and transactions become more personalized using any available information. In addition, product offerings can be customized. For example, entertainment products can be customized to the preferences of the consumer.

Customisation requires a complex process for suppliers. Companies that manage this process the best when offering custom products in a cost-effective manner will gain a competitive advantage over mass-product suppliers.

First, Ericsson must be able to gather customer information, (both terminal and network) requiring customer feedback through methods such as registration and purchase records.

Secondly, Ericsson must be able to make assumptions about consumer preferences. A common method involves using “data mining” to identify purchase patterns or to conduct customer profiling. Through data mining, it is also possible to determine what motivates customers and what keeps them loyal.

The next step is to store preferences for later use with technology such as data warehousing. Since consumers tend to interact with Ericsson in many ways and in many locations, Ericsson must be able to integrate multiple customer data sources to provide maximum potential customisation.

Finally, Ericsson should tailor product offering to match those preferences. Additional services could also be offered based on comparing a specific customer’s preferences to a standard consumer profile. We believe that these patterns of customisation will strengthen Ericsson Turkey’s expertise in providing total solutions for its clients.

8.2. Conclusions of the Theoretical Model

We initially studied the development pattern of the technology in the developed markets context in order to see the major determinants that shape the market, the present approaches to this new technology and the possible future state. In the light of our findings from developed markets, we evaluated Turkish telecom market together with the complementary technologies. We also included the unique features of the market, which may play important roles for the future of mobile Internet in Turkish market. Finally, we focused on the business environment of Ericsson Turkey, trying to evaluate the company within national and international context.

We preferred to put an additional emphasis on the Turkish market, since we believe that mobile Internet is the next opportunity for the markets such as Turkey, which have missed the chance to utilize the benefits of the former Internet era. When we evaluate the issue in the developed markets context, we see that mobile Internet is mainly transferring Internet applications to the mobile devices. However, the picture is rather different in Turkey. There is a huge gap between the penetration rate of mobile phones and the PCs in the favour of mobile phones. Together with the other factors that are mentioned in “Industry Analysis”, we find Turkey a good experimental case for the diffusion of mobile Internet and other technological innovations.

8.3. Future Research Areas

In our research, we focused on the strategies to be followed by Ericsson Turkey during diffusion process of MI and we gave less importance to the products. Cellular devices in 3G technologies will have totally different features compared to the 2G devices. First, they will serve as hand size computers that enable the Internet access, secondly and probably more importantly they have personalized features. These features will form a new competitive environment for the device manufacturers and the brands that are most appealing for the personal needs of the individual users tend to succeed in this new market. Within this context, 4G plans of Ericsson could also be raised, which will contribute to the mobile Internet technology by allowing up to 50 times higher

speeds in Internet connection compared to 3G technologies. A personalized feature of this new technology is also noticeable, since 4G devices will be less dependent on menus and scrolling. The cellular device will be able to recognise whether the user is standing in front of the garage door and wants to open it, or standing in a supermarket aisle wanting to buy something. It is predicted that the technology will be operational from around 2011⁹⁶.

We have limited our research with a general approach to the mobile Internet and its possible applications. In our study, we have mentioned several applications that will drive the overall development of mobile Internet. However, we did not present any detailed discussion about which market segment could be interested in which application. This could be a subject for a survey where the associate would need to perform a precise market research.

Currently, mobile Internet is an emerging technology and the future is still unclear. While doing our research, we evaluated the market from terminal manufacturers and network equipment providers' viewpoints, since Ericsson Turkey is our case company. However, we also find the other mobile devices to access the Internet important mediums for the development of this new technology. Therefore, in "Substitute Technologies" section, we raised some of the examples from these devices that could be alternatives for 3G mobile phones. We think that alternative devices for Internet access are a suitable future research area, since the appropriateness of mobile phones' user interface is still under question.

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⁹⁶ Financial Times, 14 November 2000

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APPENDIX A

GLOSSARY

3G 3rd Generation mobile technology according to IMT-2000 standard (e.g. UMTS in Europe)

API Application Programming Interface

ARPU Average Revenue Per User

ASP Application Service Provisioning

ATM Automatic Teller Machine

Bluetooth Chip technology enabling seamless voice and data connections between a wide range of devices through short-range digital two-way radio.

CB Cell Broadcast

CDMA Code Division Multiple Access. Allows reuse of scarce radio resource in adjacent areas.

CAGR Compound Annual Growth Rate

CRM Customer Relationship Management

EDGE Evolved Data for GSM Evolution. Allows networks to meet many of the requirements for UMTS

ERP Enterprise Resource Planning

ETSI European Telecommunications Standards Institute

FCC Federal Communications Commission (US regulator)

GAA GPRS Application Alliance

GPRS General Packet Radio Services

GPS Global Positioning System

GSM Global System for Mobile communications

GSM 1800 GSM operation at 1.8 GHz; formerly DCS 1800

GSM 1900 GSM operating at 1.9 GHz; formerly PCS 1900

IM Instant Messaging

IN Intelligent Network

IP Internet Protocol

ISP Internet Service Provider

ITU International Telecommunications Union: the international body responsible for telecommunications co-ordination, the successor body to CCITT

Java A high-level object-oriented language, allowing applets (applications) to be written once, run anywhere (whatever the platform is). The aim is to help simplify application development.

KM Knowledge Management

LAN Local Area Network

NMT Nordic Mobile Telephone

PDA Personal Digital Assistant

PIN Personal Identification Number

POS Point Of Sales

PSTN Public Switched Telephone Network

OS Operating System

ROI Return on Investment

SI Systems Integrator

SIM Subscriber Identification Module. Smart card holding the user's identity and telephone directory; SMS-Applications may reside on the SIM

SMS Short Message Service Facility for sending text messages on GSM handsets

TCP/IP Transmission Control Protocol / Internet Protocol

TDMA Time Division Multiple Access (see also CDMA)

TOA Time of Arrival

UI User Interface

UM Unified Messaging

UMS Unified Messaging System

UMTS Universal Mobile Telecommunications System; the third generation mobile standard

VAS Value Adding Service

VXML Voice Extensible Mark-up Language

WAP Wireless Application Protocol. Offers Internet browsing from wireless handsets

WASP Wireless Application Service Provider

W-CDMA Wideband CDMA

WML Wireless Mark-up Language

XML Extensible Mark-up Language

APPENDIX B

INTERVIEW QUESTIONS

The questions are categorized in line with the different group of interviewees. Some of the questions are common for all the groups and thus repeated under each section.

Network operators / Service Providers

The company

- What is your current position in the market in terms of
 - Market share
 - Revenue per subscriber
 - Cash card / Usual subscription ratio
 - Mobile Internet Subscribers / Mobile Phone Subscribers ratio
 - Growth rate of these segments?
- What are the technological characteristics of your current network infrastructure?
- What are your investment plans in the middle run?
- What are your criteria in selecting the equipment supplier(s)?
- How extensive are the purchasing contracts you sign with your suppliers?
- Do you think you can get similar prices and services as the operators⁹⁷ in developed markets get?
- Is there a technological gap between your network structure and the operators¹ in the developed markets?

⁹⁷ Stands for 'network operators / service providers'

Customers

- What are the characteristics of Mobile Internet users? (Already computer literate, converted from conventional Mobile subscription to Mobile Internet subscription, etc.)
- What are the products and services you offer to enterprises, both the corporate clients and the SMEs?

The industry

- What are your strategies and plans for promoting the Mobile Internet and developing the market?
 - Do you have any special strategy to support the companies providing Mobile Internet services such as running sites accessible via WAP phones?
 - What is the approach you use to create Mobile Internet services? (Outsourcing / generating spin-offs etc.)
- Which services do you think are appropriate for the Mobile Internet environment?
- Do you think there are differences in the Turkish market with respect to the other developed markets that could prevent the spread of some certain services in Turkey?
- *What are the differences between the services and products offered by **Turkcell** and offered by other operators **Sonera** owns⁹⁸? (This question is specific to the operator, Turkcell)*
- What are the barriers and drivers in the development of the mobile Internet in Turkey in your opinion?
- What are the strategies to go beyond these barriers in your opinion?
- Which of the following complementary resources are most crucial to speed up this process?
 - Finance
 - Services for the mobile Internet environment

⁹⁸ Turkcell is co-owned by the Finnish mobile operator Sonera

- Complementary technologies
- Competitive manufacturing (price of the equipment)
- Marketing
- Other
- What do you think are the key success factors in your industry and particular market?
- What do you think your competitive advantage is?
- Who do you think will control the Mobile Internet development process in the future?
 - Equipment vendors
 - Network operators – Service providers
 - Companies generating products and services appealing to the mobile Internet
- Who will get, in your opinion, the most of the distribution of the benefits of the Wireless Internet?
 - Equipment vendors
 - Network operators – Service providers
 - Companies generating products and services appealing to the mobile Internet
 - Customers
- Do you have any solutions to increase the appropriability of your operations and increase your share of this distribution of benefits?

Equipment Vendors

The Company

- What is your position in the Turkish market in terms of
 - Market share in different categories
 - Main customer accounts
 - Sales growth?
- What is your position in terms of the global sales of your company?

- The organizational information such as the size of the workforce, number of offices, the distributors, the length of existence in the country, etc. that was not available as secondary data.
- Which segment is most attractive for you, the infrastructure equipment, handsets, enterprise solutions, etc.?
- How do you manage your key customer accounts? Do you employ account managers for the potential clients as well?
- How do you construct your network of relationships with different agents in the industry?
- What is the general condition of
 - Reputation (brand awareness, etc.)
 - Network of relationships in Turkey?
- Do you think you have an edge over your competitors in these fields?
- Do you think you have a first mover advantage in the industry?
- Do you think if first mover advantage is an advantage in a rapidly changing industry, particularly in the mobile Internet industry?
- What do you think your competitive advantage is?

Specific questions for the case company: Ericsson Turkey

- How do you compare yourself to the other subsidiaries of Ericsson? Do you think you are treated different in comparison to the subsidiaries in Japan or other developed countries with regard to resources committed, independence, etc.?
- What is your contribution to the overall technology development and innovation process within Ericsson? (Case: ‘remotely controlled switching unit update system⁹⁹’)
- Do you encourage Innovation and generation of the new ideas within the organization?
- What do you think is your competitive advantage?

⁹⁹ A system developed by Ericsson Turkey

The industry

- What are your strategies and plans for promoting the Mobile Internet and developing the market?
 - Do you have any special strategy to support the companies providing Mobile Internet services such as companies running sites accessible via WAP phones?
 - Do you have any programs to provide finance for the start-ups creating products and services for the mobile Internet customers?
- Which services do you think are most appropriate for the Mobile Internet environment?
- Do you think there are differences in the Turkish market with respect to the other developed markets that could prevent the spread of some certain services in Turkey?
- What are the barriers and drivers in the development of the mobile Internet in Turkey in your opinion?
- What are the strategies to go beyond these barriers in your opinion?
- Which of the following complementary resources are most crucial to speed up this process?
 - Finance
 - Services for the mobile Internet environment
 - Complementary technologies
 - Competitive manufacturing (price of the equipment)
 - Marketing
 - Other
- What do you think are the key success factors in your industry and particular market?
- Who do you think will control the Mobile Internet development process in the future?
 - Equipment vendors
 - Network operators – Service providers
 - Companies generating products and services appealing to the mobile Internet

- Who will get, in your opinion, the most of the distribution of the benefits of the Wireless Internet?
 - Equipment vendors
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 - Companies generating products and services appealing to the mobile Internet
 - Customers
- Do you have any solutions to increase the appropriability of your operations and increase your share of this distribution of benefits?

The customer

- What are the main differences, in your opinion, between Turkish customers and the customers in developed countries, for example Scandinavia? (This question refers both to the final consumer and the equipment buyers)
- What are the main characteristics of the final consumer in the Turkish market in terms of using habits, computer literacy, connectedness to Internet by other means, etc.?
- What products and services do you offer for enterprises?
 - Corporate clients
 - SMEs
- What are the main differences in serving these two customer segments?
- Do you provide financial support for the SMEs trying to adopt mobile solutions to their businesses?
- What is the general attitude towards Mobile Internet among the clients? (Committed, ignorant, interested but reluctant to act, willing to adopt but lacks resources, etc.)

Companies With Products And Services Appealing To The Internet – Potential Interviewees Include Internet Service Providers (ISPs), WAP Content Providers, E-Commerce / M-Commerce Agents, Etc.

The questions in this section will be modified for each interviewee in accordance with its business area and products and services it offers. Some questions may be skipped totally where appropriate.

The company

- Can you describe your business area, business concept and the motives behind your decisions of initial investment?
- How long have you been in business for and what is your capital structure?
- Do you have access to the venture capital?
- Do you observe any interest from foreign investors of the Mobile Internet industry in Turkey?
- What is the current market position of your company and mainly which factors affect the balances in the competition?
- What is the number of employees in your company?

The customer

- What is the composition of your customers and how large is your customer base? (Age, income, corporate & individual etc.)
- Do you think conventional users will combine wireless Internet with the conventional medium, such as PCs?
- In your opinion, what are the differences between the consumers shopping online in Turkey and the consumers in the developed country markets?

The Industry

- What are the barriers and drivers in the development of the mobile Internet in Turkey in your opinion?

- How do you evaluate Mobile Internet as a new opportunity for business development? (Including its current and future trends in regard to technical and social infrastructure of the country)
- Do you look forward to get involved in the Mobile Internet market area by establishing a new website? (In case the interviewee has not already got a web site accessible via wireless devices such as WAP handsets)
- What type of online products and services do you offer now?
- Has your online shopping website fulfilled you expectations since the day it has been started up, if so, do you plan to transfer this facility to the mobile platform after making the necessary modifications?
- What is the comparative significance of wireless Internet and conventional Internet (such as PC users) in your strategy formulation?
- Have you figured out any specific product group or service that your company may have an advantage to offer on the Mobile Internet?
- In your opinion, will business to business or business to consumer market be a breakthrough for the Mobile Internet development in Turkey?
- Who do you think will control the Mobile Internet development process in the future?
 - Equipment vendors
 - Network operators – Service providers
 - Companies generating products and services appealing to the mobile Internet
- Who will get, in your opinion, the most of the distribution of the benefits of the Wireless Internet?
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Do you have any solutions to increase the appropriability of your operations and increase your share of this distribution of benefits?